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E L E M E N T S

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G E O G R A P H Y,

WITH THE

PRINCIPLES OF NATURAL PHILOSOPHY,

AND

SKETCHES OF GENERAL HISTORY.

CONTAINING

I. The FIGURE of the EARTH, and the ELEMENTS of MECHANICS and ASTRONOMY.

II. The OECONOMY of the SUBLUNARY WORKS of CREATION, Living and Inanimate.

Cohesion, Gravity, Magnetism, Electricity, Optics, Phonics, Pneumatics, Meteors, Hydrostatics, &c. the Structure of Fossils, Anatomy of Plants and Animals.

III. Picturesque and General SKETCHES of the different Parts of the EARTH, and the varied Appearances and Manners of its INHABITANTS, both Man and Brute.

With an Account of J. Cook's last Voyage, which, in accounting for the peopling of the remote Parts of the World, may serve the most Incredulous as a Cord to bind together all the Nations of the Earth in one great Family, descended from one common Stock. Also, The History of Slavery, ancient and modern.

IV. The RISE, REVOLUTIONS and FALL of the PRINCIPAL EMPIRES of the WORLD.

In which the Jewish History is, as the most important, most fully entered into; with a particular Account of the Siege and final Destruction of Jerusalem.

V. CHANGES through different Ages in the MANNERS of MANKIND.

In which the Idolatry of the Ancients, the Testimonies of the Primitive Christians, and the Gothic and Feudal Manners, with the gradual Refinement of Europe therefrom, are particularly described.

VI. VII. VIII. IX. Descriptions of the different Quarters of the World, EUROPE, ASIA, AFRICA, and AMERICA.

Their Divisions into Countries, Provinces, &c. their Climates, Soils, Animals, Plants, Minerals, Mountains, Rivers, Lakes, Canals, Commerce, Manufactures, Curiosities, Schools, Learning, Literature, Religious Profession, Language, Government, History, &c.

ILLUSTRATED WITH TEN COPPERPLATES.

By J O H N W A L K E R,

Teacher of the CLASSICS and MATHEMATICS, Usher's Island, Dublin.

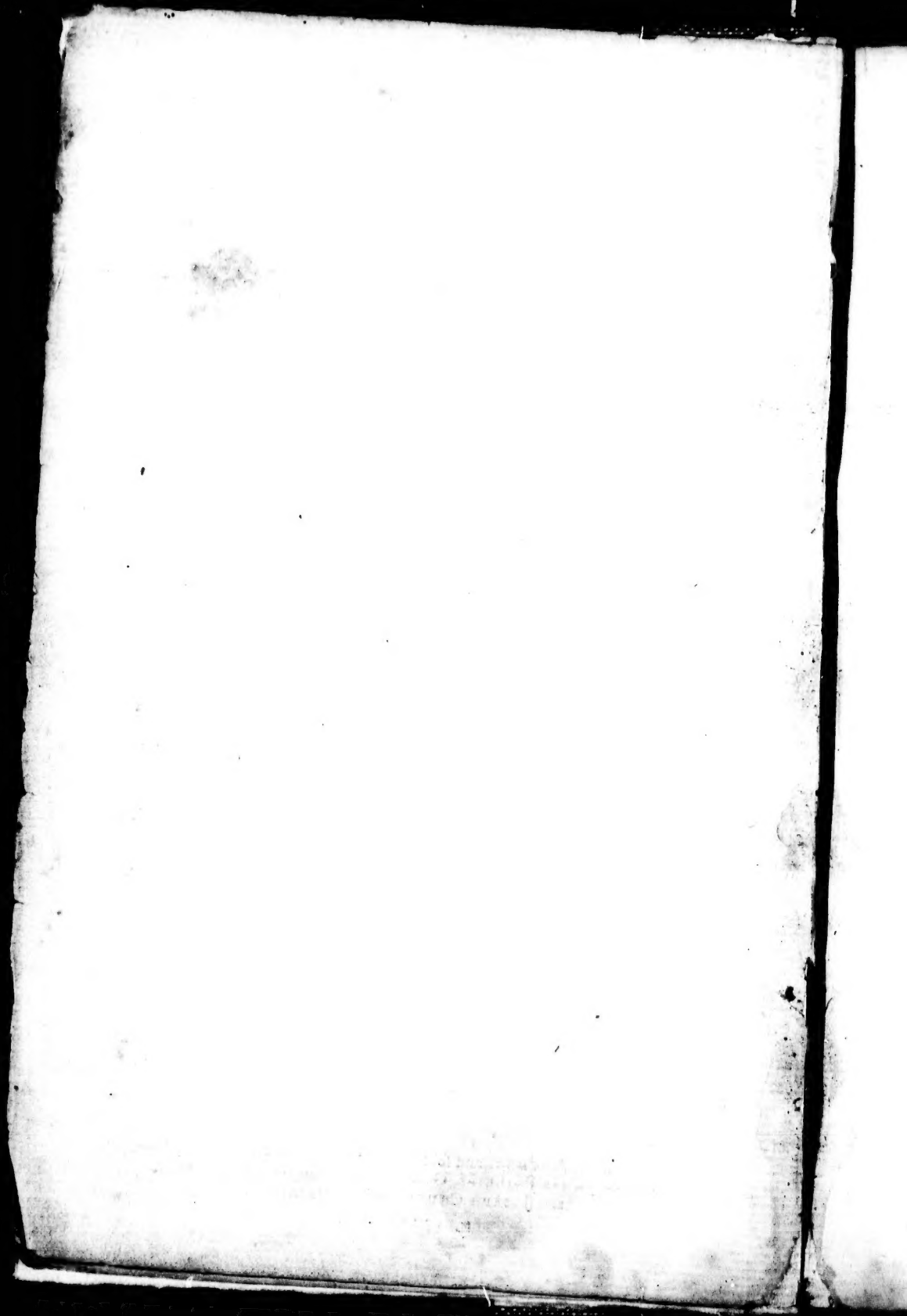
BEING PRINCIPALLY THE SUBSTANCE OF

A COURSE OF LECTURES ADDRESSED TO HIS PUPILS.

D U B L I N:

Printed for the AUTHOR, and sold by ROBERT JACKSON, Meath-street.
also, by JAMES PHILLIPS, George-Yard, Lombard-street, London,
and JOSEPH CRAKSHANK, Philadelphia.

M,DCC,LXXXVIII.



ADVERTISEMENT.

THE authorities made use of in the compilation of this work, are viz.

Anthony Benezet,	Edward Gibbon,	Isaac Newton,
Samuel Boyce,	William Guthrie,	Tho. Newton, Bp. Bristol,
William Cheselden,	Oliver Goldsmith,	Joseph Priestley,
Thomas Clarkson,	Irish Antiquities,	W. Robertson,
David Crantz,	Justin,	Salmon,
The Articles of History,	J. Cokely Letson,	Francis Arouet de Voltaire,
Agriculture, &c. in John Locke,		Voyages of Cook and other
the Encyclopædia Bri-	W. F. Martyn,	circumnavigators,
tannica,	John Millar,	Charles Vye,
Adam Ferguson,	Donald Monro,	William Walker,
James Ferguson,		

and others, whose names I do not now recollect, or from whom I have derived only very small or trifling anecdotes. Besides all these, information from several of my acquaintances has furnished some materials, and a little my own observation has supplied.

Among such numerous authors, unanimity is not to be found; and it was hard to determine on the greatest authority. Under such embarrassments it ought to be the attempt of the historian to fix on the most probable, and in this case he may often find a partiality in his own mind, which may be like to influence his compilation; in opposition to such prejudice I have sometimes made relations where I was rather incredulous myself, considering that the accounts of the authors whose names are used, should be rather plainly told than twisted or turned to any particular gratification of humour or wish; sometimes however, I have ventured to obtrude description a little, where accounts were marvellous beyond all probability; at others, I have given the hyperbolical and elegant description in the author's own words. It necessarily falls to the lot of the writer of general geography, however painful it may be to his feelings, to tell cruel manners and gross superstitions; in such descriptions however, I have seldom gone the utmost length; even on Indian severity and on the cruel business of slavery, all the ingenuity of torture exercised on the poor captives is not circumstantially entered into; this would, if possible, have rendered the accounts more dismal than they are. In describing of nations or societies of people, which sometimes forms a principal part of the business of a geographer, such delicacy and candour are necessary, as indeed to require a writer religiously impartial: in so important an undertaking, however, I wish especially to be considered only as a compiler; indeed every description in the whole work, except what has been immediately derived from the bible, I have meant as referable to the six first words of the body of it, that the reader may know what authorities I have made use of and judge for himself. I hope I may be found candid if I go farther in description or remark in some particular places, than I know will perfectly agree with the complaisant temper of some of my friends. See *British Isles*, P. VI, s. 1. Among the names received in encouragement to this work, there are authors, men of learning, and of almost every description of business, in departments civil, ecclesiastic, military and marine, and of almost every religious profession in these countries. Of all these and generally of every reader, this is my reasonable but earnest request, that if there occur in this work any unbecoming remark, any improper sentiment, it may not be in any degree imputed to the people with whom I have found it my duty to profess (the Quakers) as it is not yet my privilege to be a member of the society; I would willingly hope also that it may be attributed to youth and mistake rather than to any thing ill-meant. I have sometimes been almost ready to sink under the labour of this compilation, however trifling and small it appear when complete, and it is with great diffidence I dismiss it to public view. I have often in the course of it felt deficiency in a variety of ways, a want of a more general and extensive reading, of a recollection of what I had read, observed, or heard remarked or related. When Albinus had written an history of the Roman affairs

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in Greek, and apologized for any slips or improprieties that might be found in the language, upon the account of his being a Roman, Cato called him a trifier, for choosing to do that which, after he had done it, he was obliged to ask pardon for doing; and the same remark may perhaps be admitted as becoming, offer itself here. One apology however may perhaps be admitted as becoming, for this juvenile, indeed puerile undertaking: I began it at a time when, from a concurrence of unexpected incidents, I found myself in very embarrassed circumstances, and when other means of subsistence were scarcely adequate to the calls of the day; labouring under these disadvantages perhaps candour will make large allowances. Men of affluence and leisure may, when they find themselves in the vein, feel a gratification in their literary pursuits and productions, but the needy must toil, they have not the opportunity of when materials are collected and matters duly put in order; at that very instant perhaps they are called off by indispensable avocations, and irrecoverably lose their pleasing or favourite little arrangement. Perhaps this also will be farther admitted as an apology: the information or entertainment of youth, and of those who have not leisure or inclination for minute research in the records of history or the volumes of creation, was attempted in this work rather than the amusement of the accurate observer, or man of learning. To conclude, I feel and acknowledge myself obliged to my friends, who, from motives of benevolence, have subscribed to this work; and I hope those who have been influenced by incitements of curiosity may not be disappointed, for the design is extensive, however feebly it may be executed.

Dublin, No. 2, *Usher's Island*, Fourth Month, 26th, 1788.

John Walker.

P. S. In one particular instance a variation from the manuscript has happened at the press, contrary to my intentions, and this calls for an explanation, which perhaps may make me appear to some rather whimsical or singular; but which, however, I think necessary for the ease of my own mind. Men in high stations of life have flattering titles bestowed on them, inasmuch that these at length are accounted a part of their real names: if we divest the names of the accompanying titles, it is but a few of them that would be generally recognized in repeating them, and sometimes indeed the title only is known. Convinced as I am in my heart of the evil and indecency of bowing to or flattering a fellow-worm (it is easy to avoid the form but I believe a happy attainment to be removed from the spirit of it) it would be wrong in me to address men by their titles rather than their proper names; and in speaking of them, or directing to them, I would wish only to make use of the title as far as it may tend to useful information, and then not to give it as a part of the name but as the office; or if the title seem chiefly complimentary to express it so that it should be understood not as my own language, but as the fashion: thus where the word Sir occurs in this work I had written, "the Sir," meaning the Sir of the Herald's Office or the Sir of the people at large who have agreed to call the man by that title, for instance, in the manuscript there occurred "the Sir Philip Sidney," "the Sir Hans Sloan," "the Sir William Alexander," &c. there are other expressions also besides those of Mr, Sir, Lord, &c. which appear to me as flattering titles; these are the names of trades or stations in life which are accounted genteel, and sometimes even the most friendly terms of appellation when embodied with the surname to avoid the mention of the proper name. Days, Months, Planets, &c. have received names which originated in idolatry; and in describing the solar system I have expressed them thus, the Saturn, the Jupiter, the Mars, &c. not at all thereby meaning the men Saturn, Jupiter, Mars, &c. who lived many ages ago and were afterwards idolized; but the Saturn, the Jupiter, the Mars of astronomers who have not yet given to those planets any other names.

C O N T E N T S.

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6	20	of the Note, <i>for</i> vary <i>read</i> will vary.
8	11	<i>for</i> as the utmost thickness is to the length, <i>r.</i> as the length is to the utmost thickness.
10	6	of Note, <i>for</i> autumnal, <i>r.</i> vernal.
40		last 2 lines, <i>for conc. r. conv.</i>
41	1	<i>for conv. r. conc.</i>
—	21	<i>r.</i> the White of the Eye is covered with a fine Membrane called conjunctiva.
—	6	from bottom, <i>r.</i> cataract.
44	31	<i>for</i> distant, <i>r.</i> distinct.
54	23	<i>for</i> paraselenæ, <i>r.</i> paraselenes.
70	9	<i>for</i> hydrostatic, <i>r.</i> hydraulic.
84	2	<i>for</i> flaking, <i>r.</i> flaking.
85	15	from bottom, <i>for</i> graminiverous, <i>r.</i> graminivorous.
94	7	<i>for</i> as much, <i>r.</i> as much as.
122	2	<i>for</i> booters, <i>r.</i> free-booters.
131	10	from bottom, <i>for</i> gusses, <i>r.</i> guests.
135	10	<i>for</i> parts, <i>r.</i> coasts.
145	11	from bottom, <i>for</i> it so, <i>r.</i> also.
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167	7 and 16	from bottom, <i>for</i> Rheoboam, <i>r.</i> Rehoboam.
176	2	from do. <i>for</i> possessed, <i>r.</i> professed.
180	13	<i>for</i> divided, <i>r.</i> a great part of it divided.
186	5	<i>for</i> ram, <i>r.</i> rain.
187	1.	last, <i>for</i> rights, <i>r.</i> rites.
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In B. II. P. (2) reverse the Terms *Breadth* and *Length* over the Table.
(33) *for* adjacent, *r.* subjacent.

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ADDITION to the Subject of SLAVERY.

AT the time when the account of the African Slavery, in this work was written, there appeared a pleasing prospect of an abolition of that iniquitous business. Petitions to that end were pouring in from different quarters to the Legislature, and many advocates were, and indeed still are appearing on the behalf of the poor oppressed Negroes. At length it has become an object of Parliament.

It is unbecoming and unjust, though but too common a practice, to arraign on every occasion the Conduct of those who fill public Office. It is often a delicate and difficult business they have to perform; the minds and interests of the people are various; it is impossible for them to please all: Much Obedience and Deference is due to the Maintainers of Laws; and indeed when we see men of affluence, who might live at their ease, toiling for the Public Good, who can withhold from them their due respect? No Authority however, should influence us to belie our own feelings; and, let the Reader pardon Egotism, some late proceedings in a Great Assembly have drawn from me some strictures or remarks, which I venture to offer here, with I know not what hazard of the disapprobation of my Friends, and of censures more severe.

The British Parliament, with whatever pain we may observe it, or with whatever reluctance declare it—it is a melancholy fact that that great Assembly is acting with respect to the Slave Trade in a way which seems utterly indefensible on the principles of Humanity.* To debate upon how many Negroes a Vessel shall carry into Slavery, and how they shall be treated, seems as irreconcilable with our notions of the natural Rights of Mankind, as the deliberating on the Quantity a Robber shall be permitted to despoil us of, or at best of the Portion of stolen Goods a Receiver shall be allowed to purchase from a Thief, and how he shall dispose of it when he has got it into his hands; with this difference, that the puny Invader of Property only touches our Gold, but the Dealer in Men our Liberty and Lives.

What a pity it will be, when the Wishes of the People are so generally for Justice and Mercy, if the sordid Interests of Individuals, and cowardly political Considerations, shall overbalance the general benevolent Wish. As yet they do; and it is to be feared that even the Mitigation of the Sufferings of the Negroes now in Agitation will, if resolved on, be a measure which will give Countenance to and prolong rather than abolish the wretched Traffic.

Oh that the Enactors of Laws would weightily consider the eternal Law of Truth and Righteousness! which Acts of Parliament cannot alter, and to which we must all at last be accountable,—with equal Privilege, and under the same impartial Scrutiny, with the Slave and the King—however unbecoming Distinctions may have prevailed on the Way to the Place of general Retribution.

* The Remark however is not peculiarly applicable to the present day; their Predecessors have long warranted the inhuman Commerce, and allowed it to be carried on with the most aggravated circumstances of Cruelty, unpunished and unnoticed.

ADDITION to the Account of INDIA.

Here, and in many of the Asiatic countries, the doctrine of the Metempsychosis or Transmigration of the Soul obtains: hence the people are very humane to the brute creation, under an apprehension that in hurting them they might wound a deceased relation or friend, and some worship through the day the animal they first met in the morning.

ADDI-

ADDITIONS to the Articles MAGNETISM, ELECTRICITY,
and MINERAL WATERS of IRELAND.

On the VARIATION of the MAGNETIC NEEDLE,
(*in addition to page 35.*)

THE variation of the compass, is the number of degrees or angle by which the pointing of the needle differs from the line of north and south; though the variation differs in different parts of the world, yet it is believed there is very little difference between the quantity of the variation here and in London, or in the channel; but at Paris the variation has been constantly found one degree and a half less than at London. Before 1657 the variation was towards the east in these countries; on that year there was no variation, (the needle pointing due north with us) and ever since it appears that the variation has been encreasing westward about one degree in five years, and in 1787 the variation at Dublin amounted to twenty-six degrees and an half, towards the west.

There has been noticed a daily variation of the needle, which amounts only to a few minutes of a degree, and does not appear to be thought worth notice by our land surveyors. This daily variation is almost double in summer to that of winter, it begins in the morning, and continues encreasing westward till one or two afternoon, then gradually returns and comes to about its former station against morning: But if there be an Aurora Borealis at the time, the needle is disturbed by it and this small daily variation will be eastward.

ELECTRICITY. *In addition to page 35.*

They who are in possession of electrifying machines, have a fund of amusement in the various experiments; and it frequently lies in their power to be of service to their neighbours, by a judicious application of electricity.

Applied to medical purposes] In the present improved state of the practice of medical electricity, large shocks are not made use of, as sparks and small shocks are found more efficacious, and in some cases sparks only; however in cases where the parts are deprived of sensibility it appears that larger shocks may be used with great advantage until the feeling is restored and they become disagreeable to the patient. In cases of rigidity, the shocks seem more efficacious than sparks.

A person who had got a very bad fracture of the leg, was obliged to lie eleven weeks in one posture; this occasioned so great a stiffness at his knee that it remained nearly straight and he could not bend it, he was electrified twice a day for two weeks with four or five shocks from a pint vial about one-third charged, and some sparks, and in that time he was so far recovered, that he could bring the sole of his foot to the ground while sitting in a common chair.

There occurred in the year 1779 a remarkable case which shews the benefits that may sometimes arise from a long continued course of electrifying. A female of a very delicate frame had broke her right arm, and by too tight a bandage, a mortification had begun at the elbow. The mortification was cured, but the use of the arm was lost; it was so weak she was not able to raise it without the help of the other arm, the fingers were contracted in such a manner that the hand could not be opened or shut: and both the hand and arm were almost void of sensation, except an obtuse pain at times with a pricking

viii ADDITIONS. *Magnetism, Electricity, Mineral Waters.*

numbness, and it appeared wasting and likely to become a completely withered arm. It was six months after the fracture she was first electrified six times a week with sparks one day and shocks the next, for half a year, in which time the use of her arm was restored and her hand was half cured. Her affairs calling her into the country, the operation was discontinued for near four months. After which it being repeated for six weeks, she could lace her stays and dress her head.

In many cases a cure may be performed by two or three operations, the tooth-ach (unless the tooth be rotten) is often driven away by one or two small shocks through the tooth. The wires which the assistant holds to the tooth may be each fastened between two bits of sealing wax, to prevent the shock from taking a different course. Chronic rheumatisms are greatly helped by drawing sparks through flannel, or the cloaths. Spasms and contractions of the muscles occasioned by cold or other causes are cured by shocks and sparks. That species of blindness called gutta serena, also blindness immediately proceeding from inflammation have been cured by it; but for the particular method of electrifying I refer every possessor of an electrifying machine to Cavallo's treatise on medical electricity, (a book of no great bulk or price) which will guide the benevolent electrician to apply this art in a manner more likely to be of service than might otherwise occur to him.

MINERAL WATERS OF IRELAND.

In the account of Ireland, in Book II. the mineral waters were too slightly passed over. The ancient writer Bede asserts there are hot springs in Ireland, yet if ever there were such, they are long since lost; however we have one warm or tepid water of considerable note, viz. at Mallow in the Co. Cork, it was discovered and brought into use about the year 1724 and has greatly recommended itself by its virtues; it is nearly of the same degree of warmth as the Matlock water in Derbyshire, and the Merchant's warm spring near Bristol.

Rutty in his treatise of the mineral waters of this country further informs us that we have as great a plenty and variety of chalybeate waters as any country of equal extent in Europe, and some of them so strongly saturated, that they might in a great measure supply the place of the German Spa, and may be drank at the fountain in a greater degree of perfection than the German Spa can in the state it arrives to us.

Castleconnel in the Co. Limerick is of note among the chalybeate waters; the purging waters in Francis-street and Hanover-lane Dublin are of the same quality but stronger than those of Dulwich and Strathall near London. Amongst the sulphureous waters those of Lucan near Dublin, and Swadlinbar Co. Cavan, are of most note, the former was discovered so lately as 1758.

The water of Lough Neagh is of a petrifying quality, and is likewise of some note for curing scrofulous sores and inveterate eruptions.

Though the imprudent or excessive use of mineral waters as well as of other remedies may do hurt, yet under the direction of a physician they have been of service where all other helps had failed, particularly in scorbutic and scrofulous cases, and in some instances consumptions have been cured by the milder chalybeates either alone or mixed with milk; these are also of great service in carrying off obstructions which sometimes remain after agues especially of the autumnal kind.

Waters.

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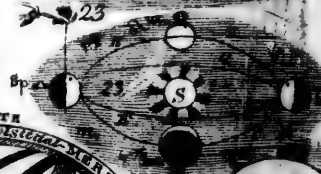
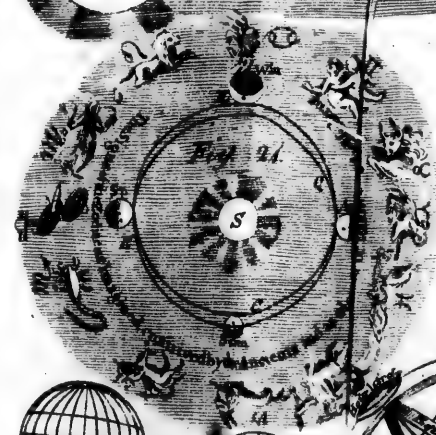
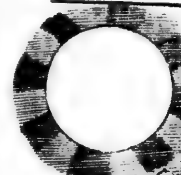
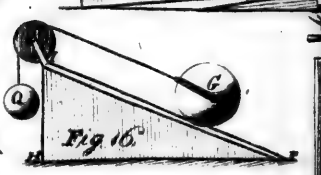
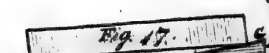
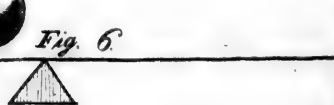
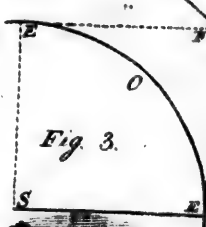
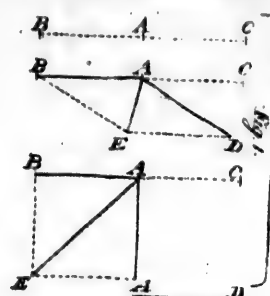


Fig. 26.



Fig. 27.



Fig. 25.

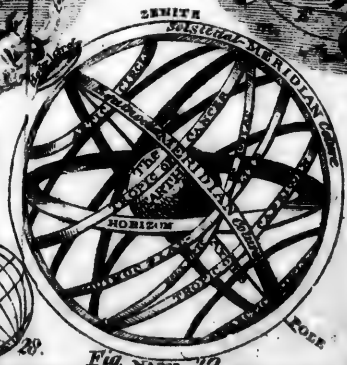
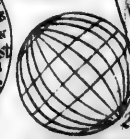
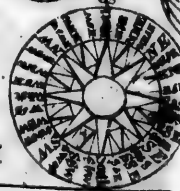


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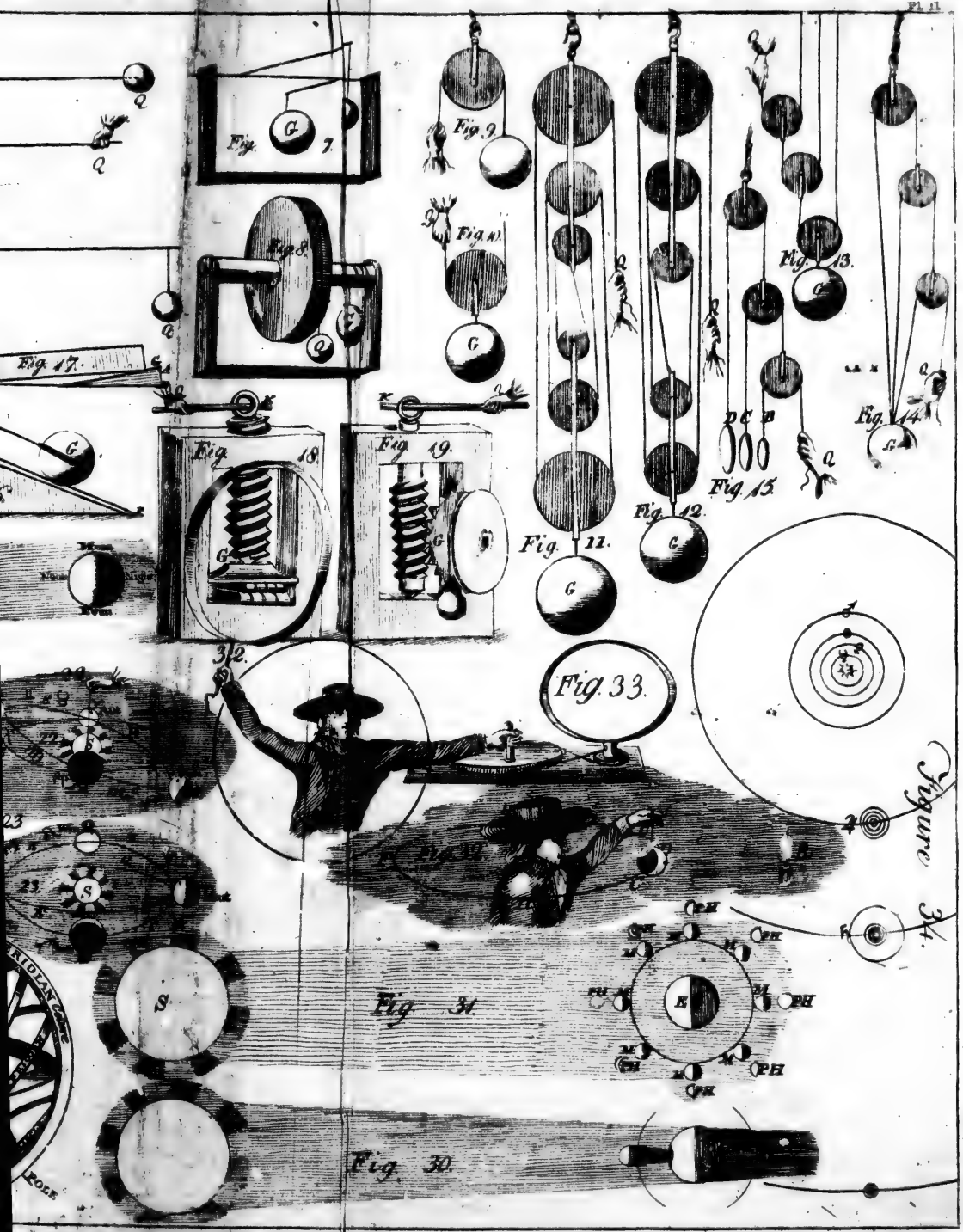


Fig. 7

Fig. 8

Fig. 18

Fig. 19

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

Fig. 14

Fig. 15

Fig. 33

Fig. 31

Fig. 30

Figure 34

PL II



Figure 34.

E L E M E N T S
O F
G E O G R A P H Y,
PHILOSOPHIC AND HISTORIC.

P A R T I.
THE FIGURE OF THE EARTH;
AND THE
ELEMENTS OF MECHANICS AND
ASTRONOMY.

FROM the authorities premised, it appears—In the remote ages of antiquity, ere man had made any great progress in science; in the yet uninformed nations of the world; among those people, in improved nations, who think on the nature of things but seldom, and then very superficially; and among the puerile reflections of the greatest geniuses; vague and romantic have been the conjectures, respecting the form, extent, and boundaries of this earth.

From our narrow, circumscribed view of things, we are naturally induced to suppose it necessary for every heavy body to have something to rest upon, or be suspended from; hence, some have imagined, the stars to be lamps, let down from heaven by golden chains; the sky, a vast arch; the earth, an extended plane, resting on they knew not what, and bounded they knew not how.

S E C T I O N I.

Figure of the EARTH, ANTIPODES, ATTRACTION.

1. *Sphere.*] It clearly appears, however, from the researches of men of science, that the land and water of our world, together, form a large round body, which is balanced in the ether, like the moon and planets; a globe of so prodigious a size, that its highest
B mountains,

mountains, are compared to itself, but as a grain of dust on an artificial sphere; and, to us little mortals who dwell on its surface, its spherical figure is hardly discernible; yet we, without sailing round the world, as some have really done, as the navigators Drake, Anson, Cook, &c. have sufficient room to conclude, with but a little observation, that the earth is a globe, or of some similar shape.

2. *Experiment.*] Plate I. Let us take a stand on the sea shore, on a clear day, and view ships leaving the coast, in any direction whatsoever; as they recede from us, we may distinctly observe the rigging of the vessels, when the hulls are quite out of sight, as if sunk in the waters. In like manner, in an evening, from the top of a hill, the observer may distinctly see the setting sun, when it appears to those below, to have sunk below the Horizon. Nay, a person of swift foot, when it has set to him below, may, by running up the hill, regain his view. Thus, when rising, does he first tip the tops of the mountains with his rays; and thus do sailors, on their first making land, discover the high parts of the coast, but not the very shore, till they are pretty close in with the land.

Now, were the surface of the sea an extensive plane of waters, through defect of sight only, thickness of atmosphere, or some such like causes, we would lose sight of the objects, and then they would disappear all at once.

3. *Antipodes.*] If then this huge mass of matter, this whole earth, be a globe or round ball, we may naturally enquire, from what does it hang, or what is there beneath to keep it up? How are things supported on its surface? And what miserable people are our Antipodes, walking with their heads downwards?

No race of people on our globe walk with their heads downwards, though their faces may be directed to every part of the heavens, through their inhabiting the different parts of the surface of the round world; and our Antipodes walk as erect as we do, though their heads are diametrically opposite from ours; for they are as strongly drawn to their part of the earth, as we are to ours; and might as reasonably imagine that we are under the strange predicament, of walking with our feet upwards like a fly on a ceiling.

4. *Universal Law.*] It seems to be an universal law in the creation, that bodies have a mutual attraction, tendency, or gravitation, towards each other; and the heavier bodies are, and the nearer they are to each other, the more strongly are they attracted; the cause is unexplicable from any enquiries in natural philosophy; and can only be resolved into the will of the creator, whose works we may contemplate with wonder, but the least of which we can never fully comprehend*.

5. *Effects.*

* That this attraction exists, is deduced, not only from speculation on the nature of things, but from actual experiment.

A weight let to hang by a string from the precipice of a mountain, if undisturbed by any current of air, or if it is perfectly calm, is observed to deviate from a perpendicular. The prodigious mass of matter contained in the mountain, attracts the weight towards itself.

In like manner, if two bundles of ropes, of equal weight, be suspended at the ends of an accurate balance, or scale-beam, on the surface of the earth, they will equi-

5. *Effects.*] This principle of attraction, seems to be as a chain in the works of the creation, to bind the elements under harmonious order, and wholesome laws; for owing to this principle it appears, that the world remains a solid ball; the sea keeps in the deeps of the earth; the mountains rest firm on their foundations, and things universally hold their respective places *.

By the same principle of attraction, will the rivulets of water tumble from the hills, glide down the vallies, and settle in the deep. The air is something, for we cannot live without breathing it; and when in motion, under the name of winds, it impels ships through the water with incredible force. It is found to be an elastic fluid. It will also gravitate towards the earth, becoming heavier the lower it descends; and, if there be any light things in the way, such as smoke, mist, &c. whether at large, or confined in balloons; any things lighter than itself; these will naturally ascend through the air's superior gravity, to regions of equal rarity with themselves; as the dense water bears up light things from sinking, while heavy bodies force their way to the bottom, in spite of all the resistance the water can make.

SECTION II.

Divisions of the EARTH, History of GEOGRAPHY.

1. *Divisions.*] The most obvious divisions that present themselves, on a view of the surface of our globe, are those that are made by the yielding water on the crooked shore; these are outlines in some measure fixed and permanent.

2. *Scientific.*] Men of science have laid out the earth in degrees of longitude and latitude, and divided it into zones and climates.

3. *Political.*] Besides these, there are other divisions of a more fluctuating kind; these are the political boundaries that separate kingdoms and empires, which however we may disregard, as delineated on the geographical chart; they have generally been marked out by the sword of the conqueror, at the expence of the blood and carnage of his fellows.

B 2

Kingdoms,

equiponderate; but if one of these ropes, instead of being rolled up in a bundle, be loosened out, and let to hang at length, down the mouth of a deep coal pit or mine, the rope, thus extended, loses some of its weight, though it hang perfectly free as before, from the end of the balance; and the rope that remains above, preponderates, through the other's being attracted by the sides of the coal pit, in directions counteracting its perpendicular descent.

* Plate I. Let A represent the round world; the particles of matter composing it, being brought into order, will naturally, by their mutual attraction, adhere to each other, and thus be prevented from falling into confusion. Let us imagine a heavy body, B. without it, by attraction, they will be drawn towards each other, till they touch. B. may be said to fall or gravitate its motion alone, being observable; the world scarcely moving, on account of its magnitude; as a large vessel on the water scarcely stirs, when the light skiff is drawn to it, or pushed from it, by a pole, though they are both acted upon with equal force. Indeed the quantity of motion is equal in both, though the swiftness is very different; for quantity of motion in a moving body, is according to the force applied in moving it; but swiftness, according to the distance moved in a given time.

Kingdoms, provinces, towns, &c. are divisions of the earth, that change with the affairs of the nations that have made them; and accordingly, in different ages, they vary their appearances.

4. *Natural.*] The natural divisions of land and water are more fixed. Pl. I.

DEFINITIONS OF LAND.

1. A continent is the largest continued tract of land, comprehending several countries in itself.

2. Capes or head-lands and promontories, shoot out into the sea.

3. Islands are entirely surrounded by water.

4. A peninsula, almost an island, is surrounded on all sides by the water, except where

5. An isthmus, or narrow neck of land, joins it to the main land.

DEFINITIONS OF WATER.

1. An ocean is the greatest extent of water.

2. Seas are particular or confined parts of it.

3. A lake is a body of water enclosed by the land.

4. A gulph is surrounded by the land on all sides but the entrance.

5. A strait is a narrow passage between two seas.

5. *General.*] Geographers have usually divided the world into four quarters; Europe, Asia, Africa, and America. If we take Europe, by much the smallest division, as a place of departure, America lies to the west, Asia to the east, and Africa, to the south. America is called the new world by Europeans, from their having but lately discovered it; the other quarters, they call the old world. America is separated from the old world, on the west by the Atlantic Ocean, on the east by the Pacific.

6. *Geographic Information.*] Our knowledge of the different parts of the earth, we have derived from the accumulated observations and discoveries of distant ages and different countries. We may reckon Moses and Homer, among the geographers of the most early times; but the places and the people mentioned in their writings, are generally now no more. The conqueror Alexander employed engineers in his service, whose business consisted in measuring and keeping an accurate account of his marches. These were extended into India, the borders of Scythia, through Judea and Egypt. By reducing Tyre and Sidon, the Greeks informed themselves of the places to which the Phenicians traded by sea. Ptolemy Evergetes led his armies into Abyssinia, and thereby obtained a knowledge of that distant country. The conquests of the Romans added both extent and correctness to the geography of the ancients. The great roads of their extensive empire, measured through their whole extent, proved extremely useful; and the Itineraries afforded considerable assistance. Accordingly, the geographers of those times, were enabled to describe countries before hardly known, and correct the errors of former writers. Their knowledge of the earth's surface, however, was but little, if compared with the discoveries of the later Europeans. In the fifteenth century, the Portuguese

Portuguese opened the way to the Pacific by the Cape of Good Hope. The Spaniards afterwards attempted the passage to India, on the west, under Christopher Columbus; but instead of India, they discovered America. It might seem superfluous here, to enter into a detail of what followed: how the other European powers embarked on similar enterprizes; how they have penetrated into every habitable climate on the earth; and how often they have abused their superiority among artless and feeble nations. In short, from the travels of missionaries, and adventurers, and from the voyages of navigators, we have now an acquaintance with every quarter of the globe.

SECTION III.

UNIVERSE, *Centripetal and Centrifugal* FORCES.

The principle of attraction, by which the order of sublunary things is kept up, naturalists suppose, upholds not only the component parts of the earth, but the globe itself and the whole universe.

1. *Planetary Revolutions.*] They tell us that the earth is a planet; that it and six other primary ones, move round the sun, in orbits, nearly circular; that some of them have secondary planets, satellites, or moons, accompanying and moving round them in their orbits, as our earth has one moon; that the comets also move round the sun; that all these together compleat our solar system.

From the motion of the earth on its axis, and from its orbit round the sun, they derive all the changes of night and day, and the vicissitudes of the seasons that we experience; and as the other planets are subject to the same physical laws as our earth, they by analogy conclude, that they have their seasons, their days, and their nights, as well as ours; as also inhabitants suited to their respective regions.

2. *Starry Heavens.*] 'Tis conjectured, that the fixed stars are all of them suns, round which planets may revolve; though from their immense distance from us, we cannot discover them.

The social idea prevails, that these may be the mansions of beings suited to their places; to whom the Great Parent dispenses marks of his goodness as well as to us. And indeed, from the immense distance that the fixed stars are from us and our system, it may not be inconsistent with the truth to believe, that those huge vivid globes, lost to our view in a point, were created to support and cheer other creatures, rather than merely to guide us in our little peregrinations on the globe, or assist us in our astronomical observations.

3. *Forces combined.*] Astronomers suppose, that a mutual attraction exists between the sun and fixed stars, or suns, by which they are all poised in equilibrio. They imagine, that the suns are a sort of centres of gravitation to the planets that surround them; that the attraction or centripetal force, which would alone draw them to the centre, is nicely combined with an impulse these bodies have received, which of itself, and unrestrained, would cause them to fly off in a right line through the immensity of space. This impulse is called the centrifugal force; that by the combination of the centripetal and centrifugal forces,

forces, the planets are naturally carried in orbits round the sun; that the primary planets are as centres of gravitation to their satellites or moons; and they account for the revolution of these, from the same physical laws*.

4. *Applied to Sun and Earth.*] From the unexplicable law of gravitation or attraction, that universally prevails in the natural world, it may readily appear, that if the sun and the earth were the only bodies in the universe, and they at rest at a distance from each other, by their mutual attraction they would directly be drawn towards each other. The sun being a million times bigger than the earth, the latter (as a light skiff drawn to a large vessel) would move with great velocity, and fall to the sun; the sun would slowly meet the coming of the earth. As each would thus be influenced by the other, so the centrifugal force which, combined with attraction, carries the earth round in its orbit, and prevents it from falling into the sun: it also carries the luminary round in an orbit, and prevents it from falling to the earth; and the centre of their revolution or their centre of gravity, lies between the two bodies. As the earth is but very small, in comparison with the sun, it is whirled round in an orbit, proportionably larger than that of the

* It is observed in the natural world, that matter is of itself passive, indifferent as to motion or rest; that hence, were a body put in motion, it would continue to move on in a right line, without end; or if it was at rest, it would for ever remain so, unless there was some active cause to produce a change.

Pl. II. Fig. 1. Let A. be a body uninfluenced by the attraction of any other body; let us suppose that it receives an impulse that would carry it in a certain time to B. if at the same time it receives a contrary force of equal strength, that would alone in the same time carry it to C, the contrary impulses will neutralize each other, and the body remain at A. but if with the original impulse that would have carried it from A. to B. it not interrupted, it receive at the same time a force that would of itself carry it from A. to D. the body will move in or describe the diagonal AE. from the combinations of the two forces AB. and AD. and will at the end of the certain time, be exactly at the same distance, as when it first set out from the places B. and D. where the acting forces respectively tended to carry it, if the forces are equal; but if the impulses AB. and AD. be unequal, fig. 2. the body will be found at the same distance from the more remote place of tendency B: as it was from the nearer D. and reciprocally at the same distance from the nearer place of tendency D. as it was from the more remote one B. on its first setting out from A. When the forces are equal, the diagonal AE. or motion produced by the combination of the two impulses, according to the directions of the force applied, vary through every degree of swiftness, from absolute rest, to the aggregate of both velocities, added together, or produced in one right line. When the impulses are unequal, the swiftness of the body will vary, according to the direction of the forces, from the sum of the two velocities added together, to that of the greater, when the less is subtracted from it.

Fig. 3. From these known principles of matter put in motion, it is discovered how and why the planets move in orbits round the sun. Let S. represent the sun; ES. the attractive force whereby the earth is drawn towards the sun; EF. the centrifugal impulse: by the combination of these two forces acting at the same time upon the earth (or it may as fitly be said, between the conflict of the two) it would naturally move along the line EE. in the same time it would have moved along either of the other lines singly; but, as the centrifugal and attractive forces act not by starts, but uniformly and constantly, the earth instead of being moved along in right lines, is naturally resolved into a curved one, or orbit. EOE.

It may here be remarked, however, that the sun is not strictly a centre of gravitation to the planets, nor are the primary planets, that have moons or satellites accompanying them, strictly centres to the orbs that revolve round them.

the luminary, and their common centre of gravity lies consequently very near the centre of the sun. The same laws hold between the sun and other planets, and between the primary planets, and their satellites, or moons.

S E C T I O N IV.

M E C H A N I C S.

On these principles, which support the order of the spheres, the science of mechanics wholly depends; and in a very slight view of the mechanical powers, there seems a familiar representation of the natural laws of the universe.

1. *Powers.*] The mechanical powers have been reckoned six; the lever or balance, the wheel and axis, the pulley, the wedge, the screw, and the inclined plane: The three latter may be considered as different modifications of the principles of the inclined plane; the three former, the same of the balance or lever.

2. *Law.*] It is a law in mechanics, that whatever be the force of the power applied, it can produce no more than a certain effect. This effect, therefore, is only differently modified by all the various contrivances of machinery. By some machines velocity is acquired; but what is gained in swiftness or time, is lost in power. By others an increase of force or strength is gained; but what is acquired in power, is lost in velocity or time. So the effect remains ever only equal to the force applied, whether the weight of a stream of water, as in mills; the expansion of a steam, as in fire-engines; whether the strength of a horse, the force of a man's arm, or any other thing. If therefore we consider two weights, as the contrary forces applied to any of the mechanical powers or machines, in whatever proportion the greater exceeds the less; if in the same proportion, the rise or fall of the less, exceeds the ascent or descent of the greater, when the instrument is put in motion, the weights, however different their magnitudes may be, will themselves naturally equiponderate, if the machine be let to rest. Thus in the instruments or machines Fig. 4, 5, 6, 7, 8, &c. when put in motion, if the weight *G*. be to the weight or power of the hand, applied at *Q* as the ascent, descent, or motion of *Q* is to the rise or fall of *G*. the weight or forces *G*. and *Q*. shall, if left to themselves, naturally balance each other.

All the mechanick powers are subject in some measure or other, to impediments from friction; but setting this aside, and considering the nature of these instruments only in theory.

3. *Inclined Plane.*] The inclined plane affords a means of raising a weight with less force, than what is equal to the weight itself. Suppose it was required to raise the globe *G*. Fig. 16, from the ground *H. P.* up to the point whose perpendicular height from the ground is *H. I.* If the globe *G*. was drawn by a cord parallel to the plane *I. P.* let the cord be continued on and passed over the pulley; and let the weight *Q*. be hung to it, or a hand may be applied to it. Now if the weight or power of the hand at *Q*. bears the same proportion to the globe

globe Q as IP bears to IH , i. e. as the fall of Q bears to the direct ascent of G from the ground, the smaller weight or force of the hand at Q will support the globe G .

4. *Wedge.*] The wedge may be considered as two inclined planes, joined together obliquely, for gaining of power. When a wedge is put under any weight to raise it up Fig. 17. the force with which the wedge will lift the weight, when driven under it by a blow on the end GAB , will bear the same proportion to the force wherewith the blow would act upon the weight if directly applied to it, as the velocity which the wedge receives from the blow, bears to the velocity wherewith the weight is lifted by the wedge; ~~i. e. as the utmost thickness GAB is to the length of the wedge;~~ and the same proportion holds in cleaving of timber, or producing any similar effect.

5. *Screw.*] The screw may be considered as an inclined plane, twisted round a roller; sometimes it is double, treble, or fourfold; or it has two, three, or four threads, or twisted inclined planes. There are two ways of applying this instrument. Sometimes Fig. 18. it is screwed through a hole or box, fitted to the screw or pin. Sometimes Fig. 19. it is applied to the teeth of a wheel fitted to receive it. In both these cases, if a bar QK be fixed across the screw, the force wherewith the end G of the screw Fig. 18. presses, and the force wherewith G the teeth of the wheel Fig. 19. are pressed, each force bears the same proportion to the power Q applied to the end of the bar, as the velocity of the end of the screw, or of the teeth of the wheel bears to the velocity of the power Q when the screws are turned.

6. *Pulley.*] It is easy to estimate the effect of the pulley, simple or combined.

In Fig. 9. where the weight hangs from one string, the power E . suspends a weight equal to itself. In Fig. 10. where the weight hangs from two, the power Q holds a weight double of itself. In Fig. 12. where the weight hangs from five, the power Q balances five times its own weight. In Fig. 11. where six strings support the weight, the power Q suspends six times itself.

There are two other ways of supporting a weight by pulleys; one of these is represented in Fig. 13. here the weight being connected to the pulley B , a power equal to half the weight would support the pulley C , if applied immediately to it. A power only equal to half of that which supports C would support D , but half of this last power applied as at Q . suspends D , and consequently the weight G ; the power therefore at Q holds eight times itself, applied at G .

Another way of applying pulleys to a weight, is represented in Fig. 14. To explain the effect of pulleys thus applied, it will be proper to consider different weights hanging as in Fig. 15. Here if the power and weights balance each other, the power Q is equal to the weight; BC is equal to both together; and D is equal to the power Q and the other two weights. All the three weights together, then, are equal to seven times the power Q . But if these three weights were joined in one, they would produce the case of Fig. 14. so that in that figure the weight G , where there are three pulleys, is seven times the Power Q . If there had been but two pulleys, it would have been three times; and if four pulleys, fifteen times the power.

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7. *Lever.*] The lever is generally understood to be a bar made use of for moving great weights, or effecting some great force.

Fig. 5, 6. The bar is applied in one part to some strong support; this is called the fulcrum, and is the centre of its motion; the farther the power Q is applied from this centre, the greater must be its motion, but the greater weight will it raise at G ; on the contrary, if we suppose G to be the power, and Q the effect or the weight to be raised, the nearer the fulcrum the force is applied, the less will be its power, but the greater velocity will it give to Q . We may consider our own limbs as levers of this latter description.

8. *Wheel and Axis.*] A lever may be hung upon an axis Fig. 7. and then the two arms of the lever need not be continuous, but fixed to different parts of the axis, and the axis here must be considered as the fulcrum.

From this case of the lever hung upon an axis, it is easy to make a transition to the wheel and axis. Fig. 8. Here the axes may be considered as fulcrums, and the wheels and rollers as levers, whose lengths are their semidiameters. By different combinations of the wheel and axis, many of the most complicated machines are principally made out; and the way of communicating motion from one wheel to another, is by means of teeth at the extremities of the wheels, or by cords or bands, as in the combinations of pulleys.

It has already been remarked, that no combinations of the mechanical powers, however nice or complicate, can encrease the whole effect of the force applied; the force can only be modified into certain degrees of strength or velocity.

9. *Balance.*] While we may read the laws that govern the spheres, in the properties of any of these instruments, whether simple or complicated, they appear the most obvious in the simple lever, balance or steelyard. If the two balls G and Q were connected together by an inflexible rod, steelyard, or lever, drawn from centre to centre, and the rod was so divided in C that the part CG bears the same proportion to CQ as the ball Q bears to the ball G , then the rod being supported at C , suppose by a thread, will uphold the ball. Now if the thread be twisted, so as to make the balls turn round their common centre of gravity C , it is evident, that the smaller ball will perform a larger circle than the greater; in fact it will wheel round the orbit of the greater. So it is with the earth revolving round the sun; and so with the moon wheeling round the earth.

SECTION V.

DAY, NIGHT, and SEASONS.

1. *Diurnal Revolution.*] Fig. 20. The earth is also observed to turn round on its axis, at the same time that it moves in its orbit round the sun: this revolution is performed in the space of twenty-four hours; as any part of its surface is turning to the sun, to that part the sun seems to rise; and it is with them morning. Turned opposite to the sun, they enjoy noon. Turning from the sun, he seems to set; and it

is with them evening: turned from the sun, they are involved in shadow, which is night.

2. *Heat diverse.*] From the rotundity of the globe, the sun darts his rays direct on the heads of some, while on others he shoots his beams very obliquely: hence the polar regions are rendered uninhabitable through extreme cold, while the nations of tropical countries, or those directly under the sun's rays, are coloured black through intense heat.

3. *Changing Day.*] In the different parts of the world, from the equinoctial to the poles, or terminations of the axis of the earth, their days and nights vary in length, from the same cause which produces the seasons.

4. *Seasons.*] Was the earth to move round the sun with its axis perpendicular to its orbit, a regular succession of equal days and nights would uniformly take place in the different parts of the earth; for the sun illumines half of the globe at once, Fig. 20. and every part of its surface would alternately experience a change of twelve hours light and twelve hours darkness, from pole to pole; but the earth is found to decline from the plane, E. Q. Fig. 21, both northward and southward, and move in the orbit E. C. or the ecliptic: hence the earth has day and night impartially and equally distributed all over its surface, only when it is at Sp. or Aut. in its orbit, where the equator and ecliptic intersect each other. In its moving from Win. by Sp. to Sum. in its orbit, we, the inhabitants of the northern hemisphere, will have the days increasing in length, and weather growing warm; while those of the southern hemisphere, will experience exactly the reverse. In its moving from Sum. by Aut. to Win. we have days decreasing, and weather growing cold, while the inhabitants of the southern hemisphere enjoy lengthening days, and increasing warmth.

5. *Polar Day.*] At the poles, day and night alternately succeed each other, at intervals of six months; for all the time between the vernal and autumnal equinoxes, or while the earth is moving from spring to autumn, when the sun is no longer visible at the south pole, it gives continual day to the arctic regions; and, the remaining part of the year, those dreary wastes are involved in night, while the antarctic, or south pole, is in the glare of perpetual day*.

SECTION

* The cause of these remarkable effects may be easily seen in Fig. 21, 22, 23. Let S. represent the sun; the four globes, the earth in different parts of its orbit, receiving from its changing position, the varying seasons of spring, summer, autumn, and winter, as it would appear to the eye situated, Fig. 21. between the sun and polar star; consequently, the pole of the earth towards the eye. Fig. 22. beyond the earth's orbit, at the autumnal equinox. Fig. 23. beyond the earth's orbit at the vernal solstice, or midsummer. If the black spot on the globes be supposed to represent Ireland, we may easily see how equally light and darkness would be distributed to it at the time of the equinoxes, or in spring and autumn; how small a share of sunshine it would be turned into in winter; and how short a time it would be obscured in shade or night in summer. These things may be all pleasingly exhibited beyond all description, by an easy experiment. If a couple of hoops be fixed in the direction of E. Q. and E. C. Fig. 22. and a candle placed as at S. we may, by suspending an artificial ball from a thread, as Sp. from H. and moving it easily along the hoop E. C. be agreeably entertained with a pretty miniature representation

S E C T I O N VI.

Definitions of CIRCLES, &c. Celestial and Terrestrial.

1. *Great and less Circles.*] Astronomers have considered the starry heavens, as a sphere with our earth in the center: this is the appearance they make to our senses. They have divided the terrestrial and celestial spheres, by great and less circles: great circles are those which divide either the celestial or terrestrial spheres into two equal parts: less circles are those which divide the sphere into two unequal parts.

2. *Equinoctial.*] If at the time of the equinoxes, a ray directly pointed from the center of the sun towards that of the earth, be supposed, like a pencil, to describe a circle on the surface of our globe, as it turns round on its axis; this circle would divide the earth into the northern and southern hemispheres, and would be the equinoctial line.

3. *Tropicks.*] If circles be supposed to be described in like manner, at the time of the solstices, or at midsummer and midwinter; these would be about twenty-three degrees and a half from the equinoctial, and these would be the tropicks.

4. *Polar Circles.*] When the sun is thus directly over a tropick, as he illumines one half of the globe at once, his rays extend twenty-three degrees and an half beyond one of the poles; and fall so far short of reaching the other. These extreme boundaries of light and darkness, on the north and on the south, as they are swept round the poles in one revolution of the earth on its axis, mark out the polar circles on the surface of the globe. The polar circles are the arctic on the north, the antarctic on the south. The tropicks are that of Capricorn on the south, that of Cancer on the north; so named from the constellations that are over them in the heavens.

5. *Zones.*] These circles divide the surface of the earth into five zones. The tracts at the two poles, are the frozen zones; those between the polar circles and the tropicks, the temperate; and that which extends from tropick to tropick, is the torrid or burning zone.

6. *Celestial*] The starry heavens that surround us, appear to form one vast concave. If these circles be supposed to be produced to the starry heavens, or swept round the concave, these are what are called the celestial polar circles, tropicks and equinoctial.

When the sun is over any of these circles on the earth, it will appear to us in the corresponding circle in the heavens.

7. *Ecliptic*

tation of all the changes of day and night, and the varied seasons naturally produced on its surface, by the rays of the candle striking on it, as it rises or falls in the different parts of its orbit or hoop, and as it naturally revolves on its own axis, by its touching the hoop; or we may make the same exhibition without using the hoops, by gently twisting the thread, to make out the vicissitudes of night and day; taking care to raise and lower the hand at proper intervals, to make out the changes of the seasons, as we carry the ball round the candle.

7. *Ecliptic.*] As our earth in the course of a year, moves round its orbit or ecliptic, the plane of which is oblique to that of the equinoctial, the sun in that time seems to us to move in a contrary direction, in an orbit or ecliptic round the heavens, of the same obliquity from tropic to tropic, intersecting the equinoctial in two opposite points, and forming an angle with it equal to twenty-three degrees twenty-eight minutes, the sun's greatest declination.

8. *Zodiac*] All the planets move nearly in the direction of the ecliptic; and that space on each side of it, which bounds their utmost deviations, is called the zodiac. The Zodiac is a broad circle or belt, in the starry heavens; it is about sixteen degrees in breadth. The ecliptic is a line which equally divides it in two all round.

The zodiac is divided into twelve equal parts, called signs or constellations; each sign contains thirty degrees; and these signs are named and noted in the following manner:

Aries.	Taurus.	Gemini.	Cancer.	Leo.	Virgo.
♈	♉	♊	♋	♌	♍
Libra.	Scorpio.	Sagittarius.	Capricornus.	Aquarius.	Pisces.
♎	♏	♐	♑	♒	♓

The former six are called northern, and the latter southern, signs; because the former possess that half of the ecliptic, which lies to the northward of the equinoctial; and the latter that which lies to the southward. The northern are our summer signs; the southern are our winter ones.

9. *Meridians*] If we suppose a line extended from pole to pole, on our earth, cutting the equator at right angles, this would be a meridian; for all the people who live on this line, would have noon or any other part of the day, at one and the same time.

In the heavens also meridians cut the equinoctial at right angles, and terminate in points opposite to the poles of the world.

10. *Terrestrial Lat. & Long.*] The latitude of a place on our earth, is its distance north or south from the equinoctial line. The longitude is its distance east or west from a meridian. Circles are divided, whether great or small, into three hundred and sixty parts, called degrees; the greatest longitude of a place, therefore, can only be one hundred and eighty, the utmost latitude ninety, degrees.

The meridian for measuring longitude from, on our earth, is not determinate or established; and geographers generally fix upon that one, on which the metropolis of their own nation stands.

11. *Ascension and Declination.*] The right ascension of any heavenly object, is its distance from that meridian which passes through the first point of Aries; the declination is its distance from the equinoctial.

12. *Points and Colures.*] The cardinal points of the ecliptic, are the four first points of the signs, Aries, Cancer, Libra, and Capricornus. Those of Aries and Libra, are called equinoctial points; and those of Cancer and Capricornus, solstitial points. The meridians that pass through these four points, meeting at the poles, form two large circles, there, intersecting each other at right angles; these are called the equinoctial and solstitial colures.

Celestial Long. & Lat.] If great circles be imagined to cut the ecliptic at right angles, these will intersect each other in two opposite points of the heavens. These points are the poles of the ecliptic, at nearly twenty-three degrees and a half from the poles of the world; and the circles are called circles of longitude in the heavens.

The latitude of any heavenly object, is its distance north or south from the ecliptic. The longitude its distance from that circle of longitude, which passes through the first point of Aries *.

13. *Finding the Latitude.]* The latitude of a place on the earth is more easily found than the longitude. It may be performed by the help of a quadrant and addition and subtraction only, if we have a meridian line, or other certain means to know when it is twelve o'clock by the sun. By the quadrant (Fig. 24. Pl. II.) we can find the height or altitude of any heavenly body above the horizon; if it be the sun we hold the quadrant so that his rays shall pass through two holes or sights fixed on D. S.; but if any other object, we look at it through the sights along D. S.; the plummet and thread hanging from the angle S, mark its altitude on the arch C. D. The meridian altitude of any object is its greatest altitude for that day, and when the sun is on the meridian, it is twelve o'clock by the dial. The sun's meridian altitude is his noon day altitude, and in all places north of the torrid zone, the sun is exactly south at noon, by which we may gain an idea of the other points of the compass, for if we turn our faces to the sun at noon, the north point will be exactly behind us, the west on our right hand, the east on our left.

If we take the altitude of the sun or a star on the meridian, and the sun or star be in the equinoctial, that altitude subtracted from ninety deg. leaves the latitude of the place, but if the sun be not on the equinoctial, subtract his declination if north, or add if it be south from or to the degrees of altitude, and the remainder or sum subtracted from ninety deg. tells the latitude. Those who have but very little acquaintance with the heavenly bodies may, by just looking about them, form some idea of the latitude of the place they may be in all over the world. If the sun be over their heads at noon they must be within the tropics; on the contrary, if he either keeps up or never rises during that space, they are within the polar circles; even the temperature of the place alone might give them some idea of their latitude. The north or south pole is easily pointed out in the heavens, they are those points which appear as centres of revolution to the stars in their apparent diurnal motions. If our situation be on the equator, both these points or poles shall be in our horizon, if we recede from the line, one of these poles shall sink from

* The latitudes of the fixed stars remain invariably the same, but their longitude encreases at the slow rate of one degree in seventy-one years and a half; this is not a motion of the fixed stars, but of the equinoctial points (from which we reckon the star's longitude) and which move backward at that rate; this is called the precession of the equinoxes, which requires about 25,740 years for one revolution through the twelve signs, in which time the pole of the earth in pointing to the heavens will describe one circuit round the pole of the ecliptic.

from our view, the other shall consequently rise above the horizon, just so many degrees as we are distant from the equator; to ascertain the altitude of the pole is the same as to determine our latitude. When we turn our backs to the pole and look towards the equator; if the heavenly bodies seem to rise on our left hand and set on the right, we are in a northern latitude or on the northern hemisphere; but if they rise on the right and set on the left, we are in the southern.

There are no such simple and easy methods of judging of our longitude, whether it be east or west, from any given meridian, the appearances of the heavenly bodies shall generally be the same in any longitude, while we keep in one parallel of latitude.

14. *Finding the Longitude.*] All places that lie under one meridian have the same longitude, and experience at once the same hour of the day; and as the difference of time between any two places is according to the distance of their meridians from each other, so if we knew the difference of the hour in these two places at one instant of time, it would only be another name for difference of longitude; for if their difference of time be one-half, one-third, one-fourth, or any other part of twenty-four hours, i. e. of the time of one diurnal revolution, their difference of longitude, or the distance of their meridians from each other, will be one-half, one-third, one-fourth, or a similar part of three hundred and sixty degrees, i. e. of a parallel of latitude, or a circle on the earth, in a direction east and west.

To find our longitude; besides finding the hour in the place where we are, we must know what hour it is at some distant place, the latter we must either have by some exact * timekeeper, set to the time

* Furnished with a true going watch and a quadrant, if we set out with the Greenland-men, suppose from London, and proceed towards the north; the farther we advance in the voyage the more the pole will seem to rise in the heavens or sky, and hence we may know how far we have got to the north: if we find that noon is longer in coming on than we might expect it, from the watch as rectified for the meridian of London; or in other words, that the watch is too fast for the place we are in, this at once informs us that we have got to the westward, or towards the American coast; on the other hand, if we have noon before it is 12 by the watch, that is before it is noon in London, we may be sure we have got to the eastward: If the difference between the watch and the time of the place we are in be one hour, we have got fifteen degrees eastward or westward of the meridian of London, if two hours we have got thirty, and so on in proportion.

We may leave the whale-fishers, and effect in imagination the vainly attempted passage to the Pacific on the north, if we go right over the pole when we arrive at that point, the quadrant may as before inform us of our situation; the quadrant however will here be superfluous, as at one view we shall see we are in latitude 90°. the heavenly bodies, whether sun, moon or stars, all seeming to whirl round us in circles parallel to the horizon; here the mariner's compass can no longer point to the north, to whatever part of the horizon this magic-like instrument is directed, it will point to the south, the heavenly bodies alone can be no direction to us here, though unceasingly moving they will be always on our meridian, every vertical circle being a meridian here. If taking one of them as a point of direction, we attempt to steer towards it away to the southward,

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time of the other place, or from observations of the celestial bodies; for which the eclipses of the moon and of the Jupiter's satellites are best suited, because the coming on of these eclipses is seen at the same instant

it will but mock our vain pursuit; twenty-four hours will convince us of our mistake, for at the end of one daily revolution of the earth we shall have arrived at the pole or the place we set out from, if our speed be equable; nor can we alter the matter by doubling our swiftness, except only in describing a circuit of twice the length before we return to the spot we set out from. In this distressful situation to what expedient can we have recourse, our quadrant is useless, the compass would fail, and the heavenly bodies perpetually whirling round us, seem but to bewilder us; here however our watch seems to prove a most faithful guide; by it we can see when it is at London, morning, noon, evening or midnight.

If when we know that it is 6 in the morning at London, we take our departure from the pole, having the sun on our right hand; if we keep so travelling forward that the luminary shall by degrees take us in the rear, and against twelve o'clock, or the noon of London, be directly behind us; if we still continue travelling forward in the same direction, the sun by degrees takes us on the left, till at six, or the evening of London, we have it directly on our left hand; if still travelling forward, when it is night in England we keep the sun before us, first towards our left hand, at twelve directly before us, and afterwards towards our right hand:—or, if we be supposed travelling by sea, we may express it in other words, if we keep the sun on our starboard bow when it is 3 of the morning by the watch, that is, in London; on our starboard beams at 6, on our starboard quarter at 9, right astern at 12, or when it is noon at London; on our larboard quarter at 3, on our larboard beams at 6, on our larboard bow at 9, and right ahead at 12, or when it is midnight at London:—this will be directly leaving the pole and proceeding towards the Pacific: this course will bring us up with the remotest territories of the Russians in Siberia near the arctic circle, where we find Asia and America within a few leagues of each other; passing these straits and entering the Pacific ocean, we find when it is noon in London, or by our reckoning on the watch, that midnight darkness envelopes this opposite part of the world, by this we know we are in 180° longitude both east and west from London, and by our quadrant we learn our distance from the equator. As we proceed towards the south, the stars of the northern hemisphere seem to dip below the horizon, and those of the southern appear to rise in the heavens. When we cross the equator, the arctic pole seems to sink from our view, and the antarctic pole seems to emerge from the deep. We have the most southern capes of Africa or America to double before we can return home. If we steer east for America, the day will seem to come on quicker and quicker, if west for Africa slower and slower, till having passed one of these capes and got into the Atlantic, the day and our watch perfectly agree. When this is the case, we know we are once more on the meridian of London: We have by the assistance of the quadrant to gain the same latitude, and at the same time by help of our watch, to keep on the same meridian we set out from, and this brings us back, after our ideal and most solitary voyage, to perhaps the most busy and bustling spot in all the world. Thus, by a true going time-keeper the difficulty of finding the longitude would be removed. All works of art however are liable to imperfection from their structure, and besides these, the changes of heat and cold, with the different degrees of gravity in the different parts of the earth, and the motion of travelling, all these militate against the regularity of a time-keeper, watch or clock. One artist however, J. Harrison, has so far succeeded in an attempt after a machine that should surmount these obstacles, and going regularly on, tell in every part of the world the time of the day in London, that it has been used with satisfaction in every longitude, and in perhaps every habitable latitude upon earth, by the late adventurers for discoveries; and government has bestowed upon the maker of the instrument the sum of 20,000*l.* as a reward for his labours and invention.

instant of absolute time from the different parts of the earth to which they are visible, but their relative time will differ according to their difference of longitude: Now, the times of these appearances in the heavens are calculated according to a certain meridian, suppose that of London, and these calculations we have in the ephemeris or almanack; if then, we nicely attend to the time of the coming on of the eclipse; according to our distance, east or west from the meridian of London, so will the hour of its appearance differ from that of the calculation; but the difference of time between any two places is, as was already remarked, only another name for their difference of longitude.

However, eclipses of the moon happen too seldom to be of much use at sea, and eclipses of the Jupiter's Satellites are of no use except at land, because they are not visible without a telescope, which requires a steadiness not suited to the motion of a ship. But mariners in long-voyages make use of the moon's distance from the sun, and from some stars in the zodiac at particular hours, which being calculated before hand for the meridian of London, they may by an exact observation and careful calculation from it, correct their computed longitude, for, by the course and distance they sail they compute how much their longitude and latitude are altered, which they call the ship's reckoning, which is never quite exact, and which in stormy weather they may lose.

15. *Maps.*] It is by longitude and latitude the situation of places is determined and described by the moderns. A true map of the world can only be delineated on a globe or ball. Maps, however, are projected upon different principles on plane surfaces. If a large space be described on one of these it must necessarily be represented in a distorted manner. The distortion, however, is regular; and any small part of the map in tolerable proportion with itself, though not with the whole. The lines that run from north to south in maps are the meridians. All the places that lie on one of these, from pole to pole, are in the same longitude. The lines that cross these from east to west are called parallels of latitude, as they are really on the globe parallel to each other, and to the equinoctial; all the places that lie on one of these are in the same latitude quite round the world or round the poles.

On the margins of the maps, the degrees are marked; and by these we know the longitude and latitude of the places contained.

16. *Climates.*] The ancients, in their scanty knowledge of geography, and before their invention of the manner of reckoning by the degrees of longitude and latitude, contented themselves with mentioning the climate as the situation of a place.

A climate is a certain space of the earth contained between two parallels of latitude, where the difference between the longest day in each parallel is half an hour. The climates decrease in breadth in proportion as they advance from the equator to the poles. There are twenty-four climates on each side of the equator. The equator is the beginning of the first climate either to the north or to the south. The polar circle is the termination of the twenty-fourth climate.

Within

Within the polar circles, the longest day encreases not by half hours, but by days and months.

Besides the circles already mentioned, which are in some measure fixed and determinate; there are others that vary according to the place of the observer.

16. *Poles of the Horizon.*] The zenith is that point in the heavens directly over head. The nadir is that point directly opposite the zenith; the zenith and nadir are the two poles of the horizon.

17. *Horizon.*] The sensible horizon is that apparent circle in the heavens on a level with the eye, which limits or bounds the view of the spectator on the sea, or on an extended plane. The eye of the spectator is the center of his horizon. The mathematical horizon may be considered as coinciding with the sensible, though the center of the earth is the center of the mathematical horizon; for the semi-diameter of the earth, is but as a minute point, if compared with the distance of the stars.

18. *Vertical Circles. Cardinal Points.*] The azimuths, or vertical circles, pass through the zenith and nadir, and cut the horizon at right angles.

The points where the azimuth, which coincides with the meridian, cuts the horizon, are the north and south points. The points where the azimuth, which cuts the meridian at right angles, falls upon the horizon, are the east and west points. These are the cardinal points of the compass. All the points of the compass may be seen in their order in Fig. 25 Pl. II.

19. *Altitude. Almicanter.*] The altitude of an heavenly object is its distance from the horizon; the zenith distance its distance from the zenith.

The meridian altitude, or meridian zenith distance, is the altitude or zenith distance, when the object is on the meridian.

A circle round the heavens, and through the object, parallel to the horizon, is called an Almicanter, or a parallel of altitude.

20. *Positions of the Sphere.*] A parallel sphere, is that position wherein the heavenly bodies appear to move parallel to the horizon. This can only happen at the poles, where the equinoctial coincides with the horizon; one of the poles with the zenith; and the other with the nadir. Pl. II. Fig. 26.

A right sphere, is that wherein the heavenly bodies appear to rise direct from the horizon, and to fall directly upon it when they set. This is common to all places situated under the equinoctial, where the poles are in the horizon; and the equinoctial passes through the zenith and nadir. Pl. II. Fig. 27.

An oblique sphere, is that where all the heavenly bodies appear to move obliquely to the horizon. This is common to all parts of the earth, except those under the poles and equator. In an oblique sphere, one of the poles seems elevated above, and the other depressed below the horizon. Pl. II. Fig. 28.

Fig. 29 Pl. II. Represents an artificial armillary sphere, which shews the disposition of several of the circles already described.

SECTION VII.

MOON, TIDES, OBLATE FIGURE of the EARTH.

As the moon accompanies the earth through its annual course, at the same time also moving round it in an orbit, as the earth moves round the sun, this produces those various phases or appearances observable in the moon.

1. *Phases.*] It is full moon, when the earth being between the sun and the moon, we see all the enlightened part of the moon. Change, When the moon being between us and the sun, its enlightened part is turned from us; and half-moon, when the moon being in the quadratures, as the astronomers call it; or half-way between the two other positions, we see but half the enlightened part.

2. *Eclipses.*] The eclipses of the sun and moon, are produced in a similar way; an eclipse of the moon, is when the earth, being in a direct line between the sun and moon, Fig. 30. hinders the light of the sun from falling upon, and being reflected by the moon. If the light of the sun is kept off from the whole body of the moon, it is a total eclipse; if from a part only it is a partial one.

An eclipse of the sun, is when the moon being in a right line between the sun and the earth, hinders the light of the sun from coming to us. If the moon hides from us the whole body of the sun, it is a total eclipse; if not it is a partial one.

In Fig. 31. let S represent the sun; E the earth; and M the moon in the different parts of its orbit. Here the balls P H in the outer circle, represent the different phases, or appearances of the moon, in the different parts of its orbit, to the inhabitants of the earth.

3. *Experiment.*] All these phenomena may be prettily exhibited in an easy experiment, with a candle and ball Fig. 32. Let S be a candle, representing the sun; B. a ball, representing the moon: let the head of the observer be considered as the situation of the earth. If the observer carry M. round his head in an orbit, and keeping his eye on it, mark out the different phases in the different parts of its orbit, at C it will appear a crescent; at F full moon; at H half moon; and at D dark moon or change. If his eye, the ball and candle, be all on a level, when M is at D, S will be eclipsed by it from his view; and when M is at F, M will be eclipsed in the shadow of his head. Hence we may see, that lunar eclipses can only happen at the time of full; and solar ones, only at the change. If the moon moved in the same plane or level with the earth, she should have an eclipse every full and change; but the plane of its orbit is oblique to that of the earth; and crosses it an angle of five degrees and one-third. The points of their intersection are called the nodes of the moon's orbit. The nodes change their place every lunation; they move nineteen degrees and one-third towards the west every year, and therefore pass round the heavens in eighteen years and two hundred and twenty-five days;

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the golden number of our Kalendars. And it is only when the nodes happen to be in a right line with the sun and the earth, that the solar and lunar eclipses take place; as the orbit of the moon is not very many degrees oblique to that of the ecliptic, she generally shines without setting every second fortnight, on the arctic or antarctic parts of our globe during their winter, and thus diversifies the gloom of their six months night.

4. *Moon-shine.*] As the moon reflects the light of the sun to the earth, so if the moon have its inhabitants, our earth, in like manner, acts as a moon to them. And so great a moon-shine does it throw on the Sattelite, that it may be seen from the earth with the naked eye. There are few but who have observed of the moon, a while before and after the change, when we can see it only a little while in the morning or evening, we may then see its whole body distinctly: One side of it appears as a bright slender crescent; but the principal part of it seems of a dark or dull, and scarcely distinct hue. The bright part of it is as the day-light of the moon; the dark part as the moon-shine reflected from the earth. We are told, that in Italy and other parts, where the air is clear, that the dark moon may be seen, or the moon at the change, when it rises or sets with the sun. If this be the case, it must be from the moon-shine or the light of the sun reflected on it from the earth.

5. *Lunar Day.*] If the moon be peopled, the lot of its inhabitants appears in some respects different from ours. The moon turns only once round on her axis, while she performs her orbit round the earth; one side of it is consequently always turned towards our earth, and receives successively two weeks of moonshine from our earth, and two weeks of sun. The other side, it seems, must be two weeks in continual darkness, and two weeks in constant day. Their day and night then is a month in length; and they experience no diversity of seasons as we do.

6. *Telescopic Observations.*] The moon is sufficiently near us, to give us an opportunity of observing with the naked eye, inequalities of its surface. By help of the telescope, they have been distinctly ascertained, and considered as mountains and cavities, as land and water; they have even got geographical names, after the islands, countries, and seas on our earth, though without regard to situation or figure, from the shadows projected on the surface of the moon, from its eminences or mountains, astronomers also calculated their heights; they were concluded to be about nine miles high. From the clear appearance of the moon, it was imagined there were neither clouds nor vapours about it, from whence rain might proceed; that there was consequently a series of fine serene weather there. It was even thought probable, that the moon had not even an atmosphere, because the planets and stars which were seen near it, had not their light refracted, as it is in passing through our atmosphere. Later observations however appear to have been more accurate. The astronomer Hertschell, whose telescope magnifies six thousand five hundred times, has reduced her highest mountains, by his calculations, to about two miles. It seems he has lately discovered also three volcanos in the moon: the principal one at the time of observation, was in a part of her disk, not then illuminated; he estimated its diameter at about

three miles. It ejected great quantities of smoke and lava; and its light was so considerable, as to illuminate the hills in its vicinity. The next lunation, he repeated his observations with the greatest attention, but saw nothing of it. The other two seemed either to have been lately extinguished, or to threaten an immediate eruption.

7. *Tides.*] While it is by attraction that the earth remains a solid ball, when otherwise its parts would be thrown off from its center by the rotatory motion which it has on its axis; and while it is kept in its orbit by the centripetal force, when otherwise the centrifugal would throw it off in a right line through the immensity of space. The water in its vallies, or the sea, and the atmosphere that surrounds it, being fluids, they receive from these two forces particular impressions, of which the firmer parts of it are not susceptible. Of these the most remarkable are the tides, which, while they are produced in the atmosphere as well as in the water, they appear to us the more distinct in the latter.

8. *Their Cause.*] If we fix a string to the side of a flexible circular hoop, and thereby swing it round in a circle, Pl. II. Fig. 32. we readily conceive how the part next the hand would draw out or swell by the drawing of the string; how the opposite part would fly off or swell, by the centrifugal force, it being least drawn in; how the intervening parts of the hoop would hereby be depressed or flattened. So it is with the ocean; that part of it which is immediately under the sun, is raised by its attraction up into a swell; that part of it which lies on the opposite side of the earth, being least attracted, is thrown up into a similar swell, by the motion of the earth in its orbit, or by the centrifugal force: the moon is so near the earth (two hundred and forty thousand miles at a medium) in comparison of the sun (near one hundred millions of miles) that the moon's attraction, and the accompanying centrifugal force, are to those of the sun as ten is to three. If we consider then the lunar tides as the principal ones, we shall find them influenced by the solar tides, as follows: at the full and change, the lunar tides ten, shall be increased three, by the conjunction of the solar ones; and a power of thirteen shall influence the sea, and produce spring tides; but at the quarters of the moon, or at the time of half-moon, the two luminaries counteracting each other's influence on the waters, the sun's power of three, shall be taken from the moon's of ten, and leave only seven operating upon the sea; and hence neap tides shall consequently take place.

9. *Earth*] If instead of swinging the flexible hoop round in a circle, as in the former experiment, we suppose it whirled round with velocity on one of its sides, as a centre, as in Pl. II. Fig. 33. we may easily conceive how this side, and the side directly opposite, would become flat or depressed, by the intervening parts of the hoop swelling out from the center, as it is whirled round. So is it with the sea; by the centrifugal force from the turning round of the earth on its axis, the waters of the ocean are thrown up many miles higher at the equator, than they are at the poles. We might hence be apprehensive, that the countries within the tropics would be deluged with water; but the fact is, the solid part of the earth itself has a corresponding shape, being rather flat at the poles, and highest at the equator. The land and water then of our globe is not an exact sphere, but an oblate spheroid. A prolate spheroid is highest at the poles; a lemon may be

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It is the tendency of gravitation or attraction, to draw the waters down to the poles, and to lay even those countries that we live in, some miles under water; but this influence is nicely counteracted by the centrifugal force, which perpetually keeps it heaved up to the equator.

10. *Other effects of its Diurnal Revolution*] These forces act in like manner upon other bodies, as well as on water; hence the same bodies are of less weight at the equator than at the poles. These effects are most distinctly observable in the motion of pendulums; pendulums of the same length move slower on the equatorial parts of the earth (where they have in their descent to combat with the greatest motion or centrifugal force, from the daily rotation of the earth on its axis) than they do at the poles (where their gravitation is not counteracted by the daily rotation of the earth, and where, being nearer to its center, they are also more strongly attracted. A discovery of this difference in the motion of pendulums, or in the time of clocks in the different parts of the earth, appears to have first given the hint, that the earth was not an exact or perfect sphere. Two companies of mathematicians were dispatched from France, one to measure the length of a degree on the meridian in Lapland, the other at the equator; and a degree of latitude was found something shorter at the equator, than it proved to be on the flatter parts of the earth near the pole; our globe was found to be an oblate spheroid, and very nearly of the same proportion as the ingenious Newton had computed it to be, from his knowledge of the laws of the creation: the figure of our earth, however, differs so little from that of a sphere, that it may be considered as such in the common geographical computations, without any sensible error.

S E C T I O N VIII.

PLANETARY LAWS, and the Methods of investigating the MOTION, MAGNITUDE, and DISTANCES of the PLANETS.

1. *Motion of the Sun.*] Hitherto we have considered the sun and the earth as regularly moving in circles round one common center of gravity; however, as there are a number of planets in our system, revolving continually, like our earth, round the luminary at different distances from him, and in different periods of time; the sun may be more fitly considered as agitated round their several centers, accordingly as he is attracted by them in their different directions; nor are their orbits round the sun perfectly circular, but elliptical, the planets sometimes receding from, and sometimes approaching nearer to the sun.

2. *Paths of the Planets and Comets.*] If a thread be tied loosely round two pins stuck in a table, and moderately stretched by a black-lead pencil, carried round in an upright position, an oval or ellipsis

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will be described by the point of the pencil; the two points where the pins are fixed are called the focuses or foci: The orbits of all the planets are ellipses, but to trace out their resemblance the pins must be put very near together, and the nearer the pins are, the more will the figure resemble a circle. But in representing the path of a comet the pins must be far asunder, and then the figure described will be very long and narrow. The sun is situated nearly in one focus of the orbit of every planet and comet. That place in any orbit which is nearest to the sun is called the perihelion, and the most distant part the aphelion.

Planetary Laws.] There are two principal laws observed in the solar system, which regulate the motions of all the planets.

First. The planets move through the arches of equal areas, (that is of equal portions of the planes of their orbits) in equal times; when a planet in its orbit is receding from the sun, the attraction of the luminary more directly counteracts its centrifugal force, and retards its velocity; at length, the attraction prevails, and the planet begins to approach nearer to the sun: in this approach the attraction encreases, as before it counteracted the motion of the planet; the velocity however which it acquires in its approach to the sun, is the very force which again makes it recede from the luminary. Thus it is kept, as it were, swinging to and from the sun—as it recedes, it is retarded by attraction, and kept from flying off through the immensity of space; as it approaches its velocity is encreased, and this velocity again throws it off, and thus prevents it from falling into the sun.

Second. The squares of the periodical times of the planets, are as the cubes of their mean distances from the sun; hence the proportion of their distances are easily ascertained, by comparing the times of performing their orbits: was the real distance therefore of any of them determined, the distances of all the others might be thus obtained. By observations of the transits of the planet Venus over the sun in 1761, and 1769, we now know the real distances of the planets from the sun much better than before, and when the distance of an object is known, there are easy geometrical rules for deducing its real bulk, from its apparent size.

3. *Deception of the Senses.]* When astronomical doctrines are first advanced to us, we listen with surprise, and naturally doubt; we ask, How can astronomers measure the stars, and tell their distances, for they are quite above us and out of our reach; and how can they tell that the earth turns round? if we may believe our own senses, the earth stands still, and the sun, moon and stars daily rise and set, to serve us for the purposes of light or of heat.

Those who have sailed in ships or in boats, may well remember, when once they had got accustomed to the motion of the vessel, so far from their being sensible of its progression, the objects that relatively were standing still, as the houses, the trees, and the shore, appeared to be in motion, while they themselves, and their vessel, seemed to be quite at rest; the testimony of our senses then alone is invalid and futile in philosophical enquiries, and must be corrected by reasoning on the nature of things.

4. *Corrected by Reasoning.]* If the most prodigious weight and complication of artificial machinery that the powers of man could invent

invent and execute, were erected before us; if, among all the variety of motions that could be contrived in it, one small wheel, index, pointer or hand, so minute as to require a microscope to discover it, turned round on its center, in a second of time, while the larger wheels were days, months, or years, in turning on their respective axes: it would certainly be most preposterous and unnatural to expect, that the little microscopic wheel should sustain the whole, that it alone should be fixed and firm, and that the prodigious weight and complication of machinery, should be whirled round it every second. Thus unnatural, and still more inconsistent with the laws of the creation, appear these theories in the eye of modern philosophy, which suppose that the earth stands still, and that the myriads of globes are perpetually whirled round it every 24 hours; for astronomers find by observation, that our earth is in size but as a small or dimensionless point, if compared with the distance of the fixed stars; and that even our whole solar system, is but as a minute spot, in what is nightly seen of the creation.

5. *Ascertainment of the Distances and Magnitude of Objects.*] To conceive how they ascertain the distance and magnitude of the planets, will be difficult for those who are unacquainted with the science of geometry: perhaps, however, an idea of the principles on which their calculations are founded, may be gathered from what is observable on earth; and first, if walking along a straight road, we pass any object on the right or left, as a tree or a tower; if the object lies close to the road, a very little distance will make a considerable difference in its bearing from us; at a very short distance before we come up to it, it shall appear almost directly before us, soon we shall be abreast of it, and as soon we shall leave it behind us; but, if the object be at a great distance from the road, we shall travel along for some time, with it nearly abreast of us, and from hence we might form some estimation of its distance, if we had nothing else to guide us; in fact, by measuring a portion of the road, and observing the exact direction that lines would take, if pointed from the extremities of that portion of the road to the object in view; or in other words, by observing the angles these lines would make with the road, a geometer might easily calculate the distance of the object from the road; on these principles rather farther complicated, they compute the distance of the planets; it is easy to conceive, if right lines are pointed from the geometer on the road to the extremities of the object, these lines will vary their direction, or form an angle more or less acute, according to the breadth of the object; but the distance being already ascertained on the principles of the triangle, he calculates as before, and thus determines the diameter of the object: we may readily see, how the same method of investigation is applicable to the planets; their very great distance however, from us, renders the angles so small, that the difficulty attending it should seem obvious and almost insurmountable. The place of the sun, or of a planet in the heavens, as it would appear to an observer, if seen from the center of the earth, is calculated by astronomers: if we suppose an observer on the surface of the earth, to whom the object is not vertical; he will look at the object in a rather different direction; the different lines of direction along which they will look, would make an angle at the object; this angle is called

its parallax; but the greatest parallax is so very little, the semi-diameter of the earth being so short a line, when compared with the distance of the object, that it is difficult to determine it: hence it is, they have availed themselves of the transit of the Venus, or its intervention between the earth and the sun, to ascertain the distances of the planets; still however, on the same principles, though vastly more complicated. The distance of a planet being ascertained, yet an object so very far distant appears but as a spot, or a point of very small or dimensionless magnitude; here the telescope lends its assistance, and indeed without it, but little could be done in this way; as viewed thro' the telescope the object is magnified, or it appears under a greater angle; it is calculated on optical principles, how much bigger the object appears to us, or how much nearer it seems to be brought towards us, by means of the instrument; and this apparent approach being thus ascertained, its magnitude is calculated as if actually brought nearer to us.

SECTION IX.

SOLAR SYSTEM.

The names and characters adopted by astronomers to express the planets are as follows, in their order, wherein they roll round the sun. Pl. II. Fig. 34.

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Mercury. Venus. The Earth. Mars. Jupiter. Saturn. Georgian Planet.

1. The sun, a vast globe of fire near a million times as large as the earth, is placed in the center of the system, and supposed to give light and heat to the seven primary and twelve secondary planets, that have been discovered to move round him: by spots on his disk, he has been found to turn round on his axis in about twenty-five days. These spots are frequently altering in their shape, situation and number; some have supposed they have seen small indentions on the edge of the sun, as the spots have passed it, and conjectured, that a fluid matter rolling into these pits, might occasion the transient appearance and disappearance of the spots.

2. The Mercury is the first planet in the order of the system; it is not much larger than the moon, it moves round the sun with great velocity in about eighty-eight of our days, but it is so near the sun, we can seldom see it; and when we do, it is for so short a time and mostly in twilight, that we can discover no spots on its face, and therefore we know nothing of the length of its days and nights; but it is likely it may be a fellow world, with inhabitants adapted to the heat of its situation.

3. The Venus the second planet from the sun, remarkable for its mild brilliancy, is nearly as large as our earth, and moves round the sun

sun in about two thirds of our year; its day is about as long as twenty-four of ours, its seasons more diverse than ours on earth, and it has been calculated to have mountains higher than those of the moon: when it is to the west of the sun it is a morning-star, when to the east of him an evening-star.

4. Our Earth is the third planet in the order of the system. It moves round the sun in 365 days and nearly 6 hours, which is the origin of our civil year, and it turns round on its axis in the space of a day and night. The earth is attended by the moon, which moves round it in twenty-seven days and eight hours, but from one new moon to the next twenty-nine days and an half. The moon's phases are explained in page 18.

5. The Mars is the fourth planet from the sun, it is about one fifth as large as the earth, its day is nearly as long as ours is, it goes round the sun in something less than two of our years, and has no variety of seasons: when we pass near it, it has a fiery appearance, and is often mistaken for a comet; but when we are on the opposite side of our orbit, it appears small, and scarcely to be distinguished from a fixed star.

6. The Jupiter is the fifth planet in the order of our system, and the largest that has yet been discovered, being near a thousand times as large as our earth, and five times the distance from the sun that we are; so enjoys but a twenty-fifth part of the light, heat and attraction of the luminary that we do; for the proportions of these are inversely as the squares of the distances; four moons however seem to cheer the inhabitants, if such there are, of this distant planet; it has no variety of seasons; its year is equal to about twelve of ours, and yet our day is more than twice as long as its; turning so swift on its axis, its figure becomes more oblate than that of the earth, being more than six thousand miles longer in diameter from one side of its equator to the other, than from pole to pole: this swiftness of its diurnal motion, also draws its clouds and vapours into streaks or lines over its equatorial parts, forming what is called Jupiter's belt.

7. The Saturn is the sixth planet from the sun, and is near thirty years in going round him; the length of its day is not yet ascertained; it has five moons or satellites, continually revolving round it, besides a broad thin ring, set edgeways round it, but detached a considerable way from it, which also reflects light upon it: by these reflections, and the direct light from the sun, it receives more light than two such full moons as ours would afford; so it seems likely it may have inhabitants adapted to the gloom, and coldness of its situation. Among the various conjectures that have been made respecting the very singular appearance of the ring that accompanies this planet, some have supposed it to be the fragments, or ruins of its exterior original shell, the rest of which has fallen down and formed the present orb; if the ring itself be inhabited, they must have a day and night equal to near thirty of our years, as the sun shines for almost fifteen of our years on the northern side of it, then goes off, and shines as long on the southern side. Neither the Jupiter's, the Saturn's Moons, nor the ring can be seen without a telescope.

8. The seventh planet in the order of our system, was but lately discovered by Herschell, and called by him the Georgium sidus, or Georgian planet; it is nearly twice as far distant as the Saturn from the

the Sun, and will be near eighty three years in going round him. It is ninety times as large as the earth, and on a clear evening visible to the naked eye if the moon be absent. Its discoverer has also, within the present year, distinguished a couple of satellites revolving round it.

These we consider as the regular bodies of our system, so regular indeed, that their phenomena are exactly calculated for years before hand. Other planets there may be, which human observation has not yet discovered, and which perhaps it never may.

9. *Number and Order of the Comets.*] But we are sometimes visited by comets, which may also be considered as a part of our system; but of the number, use and revolution of these, our knowledge is very imperfect; they seem however far to exceed the number of the planets; like the planets they are observed to be opaque bodies, shining only by the influence of the sun, and like them carried along in their orbits, by the combination of centripetal and centrifugal forces; it is not to be expected, that comets should preserve the same regularity in their periods as the planets; because the great eccentricity of their orbits, makes them liable to suffer considerable alterations, from the attraction of the planets, and of each other.

It seems, therefore, to prevent disturbances in the spheres, that while the planets revolve all of them nearly in the same plane, the comets are disposed in very different ones, and distributed over various parts of the heavens. The tails of the comets appear to be steams and vapours exhaled from their bodies, and the gross atmospheres that surround them; and, like smoke, they are always in the plane of the comet's orbit, and opposite to the sun; except that their extremities incline towards the parts which the comet has left, and they perfectly resemble the smoke of a burning coal, which if the coal remain fixed, ascends from it perpendicularly; but if the coal be in motion, ascends obliquely from the motion of the coal: the tails however are of so subtle and fine a vapour, that like electrical and borealian light, it does not refract the light of the fixed stars; we can see them distinctly through it.

10. *Threatening Appearance.*] As it has seldom happened, that this distracted world has been clear of wars or other public disorders, the comets could hardly visit us at a time of perfect peace all over the world. And those who look for omens of impending calamities, in the natural or established order of things, behold with awe or terror the approaches of the comets, as certain presages of direful events; and generally find it not difficult to discern, that disturbances have happened about the time in some part of the earth. This is enough to fulfil the prediction, and confirm their credulity. On the other hand, some philosophers have not only supposed them to threaten, but even to perform still greater events. They have conjectured them to deluge the worlds they have approached, merely by the influence of their attraction on the waters of the planets. They have imagined them to fall into the sun, and to knock off by the percussion prodigious sparks from its body, which cooling by degrees, and falling into proper orbits, have become habitable worlds.

11. *Use of the Comets.*] It looks as if they were designed for some important purpose; and perhaps the conjectures of Newton are rational and consistent with the laws of the creation. It seems to have been

been his opinion, that as the comets are framed of a texture which disposes them to fume and discharge vapours in an astonishingly profuse or copious manner even at considerable distances from the sun; for some of them, when nearest to the sun in their orbits, have been yet farther distant than several of the planets; that the tails which they emit are gradually dispersed and scattered through the planetary regions, and that the planets, as they roll along in their orbits, attract this vapour to themselves, which entering their atmospheres, contributes to the renovation of the face of things, supplying moisture to the globe, and renewing the vivifying quality of the air, whose most active and subtile parts they chiefly supply; that the decrease which the sun itself may suffer, by so long an emission of light, must be supplied by the comets. The tremendous one of 1680, came so near to the sun, that it must have been retarded by its atmosphere, if there be one round the luminary; and will consequently, approach nearer in its next descent, meet with greater resistance, and be again more retarded, till it will at length impinge on its surface, and serve as fuel to that prodigious globe of fire.

S E C T I O N X.

CONJECTURES of ASTRONOMERS. *Distance and Number of the STARS.*

We may conclude this description of the solar system, with just mentioning some reflections that have been made on it by astronomers.

1. *Conjectures.*] The lecturer, William Walker, has asserted, that so perfect are the laws by which this wonderful system is regulated, and so effectual that self-physick which the Almighty has instituted through all his works, that if any disturbance happens in the system, there requires no immediate interposition to prevent or cure the mischief; each body carrying within itself the principles of preservation and cure. Enough has been said on the established laws of the spheres, to show what he means; he exemplifies it in the Jupiter still persevering in an orbit, when drawn out of its former track by the comet of 1680.

On the other hand, Newton observing some small inequalities in the motion of the planets, thought that these must increase by slow degrees, till they render at length the present frame of nature unfit for the purposes it now serves. This thought has been represented as impious; and as no less than casting a reflection upon the wisdom of the Creator, for framing a perishable work. In answer to this it has been replied, that the body of every animal shews the unlimited wisdom of its author no less; nay, in many respects more than the larger frame of nature; and yet we see they are all designed to last but a small space of time; and that it is sufficient if it endure the time intended by its author.

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Whatever truth there may be, in the speculations of philosophers, with regard to the changes that may happen in the bodies that lie without our earth, we read in the scriptures of the end of the world, and of the end of time; and however we regard it, we may continually see, that the world and time keep passing away on the children of men; and that death soon closes the transitory scene of this life. Such is the lot of the inhabitants of our earth: But what is the Condition of the worlds that surround us is unrevealed to us.

2. *Distance.*] The moon is distant from the earth 240,000 miles, and by the latest observations the sun's distance is ninety-five millions of miles; the planet Saturn is above nine times farther from the sun, and the comets in moving from their perihelion, go so far beyond the most distant planet of our system, that we quite lose sight of them till they return nearer the sun. But much farther than their greatest excursion, as calculated by Astronomers (and the Periods of some of them have been told) is the almost unmeasurable distance of the fixed stars. Far beyond the utmost verge of our magnificent system, and where our moon and planets would be invisible and our sun seem but a bright point; shine the innumerable multitudes of stars; these are called fixed, because they wander not like the planets. Whoever supposes the fixed stars placed in a concave sphere, as they appear to us, must have a narrow and contracted idea of the works of creation, and the extent of the starry heavens; for one star appears large, and another small; because one is immensely distant in comparison of another. The earth moves in an orbit of more than two hundred millions of miles in circumference; yet there appears no sensible difference between its nearest and farthest distance from these remote bodies; still they appear to be in the same situation, or at the same distance from us; still they appear to be of the same magnitude, and to twinkle with the same degree of brilliancy; and the utmost stretch of the human imagination seems incapable of conceiving the immensity that lies between.

3. *Number.*] Besides the stars which are visible to the naked eye, and which astronomers have divided into six or seven classes, according to their different apparent magnitudes, there are others which are called telescopic stars, from their being only discoverable by means of the telescope; an innumerable multitude of this kind of stars, makes that brightness in the heavens, which is called the galaxy, or milky way. By the last improvements in the telescope, 30,000 (thirty thousand) fixed stars are discovered. Many of them appear double; but they are only stars at different distances from us, appearing nearly in the same line. Some appear like a topaz; others azure; others red; all are round, and many as perfectly defined, as a shilling on black cloth.

4. *Starry Heavens.*] As the stars, contrary to the moon and planets, shine like our sun, by their own native light; astronomers imagine, that each of them is a sun, with its system of inhabited worlds revolving round it, though invisible to us from their immense distance from us. Some of those called fixed stars, have a progressive motion: some of them appear to change their magnitudes: new ones seem to rise into view, increase in magnitude, and then diminish, and vanish out

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out of sight. From these appearances in the starry heavens, it has been thought probable, that systems may revolve round systems: that our sun himself is in motion, and carries his system of worlds along with him: that suns and systems are created remote from us, endure for a time, and then are dissolved: that some of the stars may be so remote from ours, that their light may not have reached our earth ever since the creation: that could we launch out into space, and fly to the most distant star we can now see, even there we should find ourselves on the confines of creation, and see as many stars before us as we left behind: that space is infinite, without top or bottom. Well indeed may it be said, that the human understanding is bewildered in the contemplation of the wonders of the firmament; that the giddy fancy turns round, and is entirely lost and sunk in the abyss of creation.

P A R T II.

THE
O E C O N O M Y

OF THE

SUBLUNARY WORKS OF CREATION,
BOTH LIVING AND INANIMATE.

HAVING taken a view of the figure of the earth, and contemplated our globe, as undergoing the vicissitudes of day and night, and the course of the seasons from its planetary revolutions; having observed the laws of motion in general, considered the solar system as influenced thereby; having taken a view of the universe at large, as far as the conjectures of astronomers can carry us, we may now desist from astronomical excursions; and in the varied and ever changing, the sublunary works of the creation, find an inexhaustible field for admiration and studious research; and for the mind that can receive it, an awful and instructive lesson of morality.

S E C T I O N I.

SUBLUNARY THINGS, PHILOSOPHY *inadequate to their Com-
prehension.*

1. *Vicissitudes.*] It is not the fleecy cloud floating in the air, or sweeping along borne on the wind, the purling stream, the gliding river, or precipitated cataract, hastening to the deep; it is not the grass of the field, the trees of the forest, the animated tenants of the earth, the air, or the waters, growing to maturity, or passing to decay; it is not these alone that pass away. The fields themselves, the everlasting hills, the vast extended ocean, these also have their vicissitudes. The sacred history informs us, that our earth was once deluged by a flood of waters: the irregularity of its surface, at this day, might alone seem to prove the account; and those who dig any depth below the surface, meet with its ruins. The settlements of this mighty flood appear to be deposited on the lofty mountains, as well as beneath the plains or vallies, over the different quarters of the world. And later accounts tell us of more partial inundations; of sudden earthquakes; rocks cleft by the frost; mountains accumulated or torn to pieces by subterraneous fires or volcanos; of towns swallowed up in the

the earth ; of countries laid under the rolling waves of the ocean ; and of lands rising from the midst of the waters, and becoming the habitations of beasts and of men : so transient and uncertain are all earthly things.

2. *Their origin.*] There was a time when man lived in paradise, unmolested by the outrages of the natural world, and undisturbed by the still more dreadful tumults of a disordered mind. When he had given him for meat every herb bearing seed, which was upon the face of all the earth ; and every tree in the which was the fruit of a tree yielding seed ; when to every beast of the earth, and to every fowl of the air, and to every thing that crept on the earth, wherein there was life, were given every green herb for meat ; and it was so ; and every thing that was made behold it was very good. But Adam departed from the commands of his Creator, and the ground was cursed for his sake ; thorns also and thistles it brought forth ; in sorrow he was condemned to eat of it all the days of his life ; and in the sweat of his face to eat bread, till he returned to the ground from whence he was taken. Yet however the earth may have been desolated by this dreadful revolution, whatever disorders may have been introduced in the vegetable creation, or the more sensibly suffering the animal world, it seems magnificent even in ruins.

3. *World grand in ruins.*] If we cast our eyes around us on the variegated landscape, the lively morning rising on the view, the broad shine of day, the sober tinted evening, or the silent moonshine ; if we contemplate the revolving seasons, the blooming spring, the warm summer, the ripening harvest, or the hoar frost, the calm, the breeze, or the dreadful tempest ; if we mark their vicissitudes, and consider their effects ; if we survey the order or oeconomy in creation, from the slow productions of the hidden mine, to the variously diversified and animated tenants of the earth, there still seems much left to excite our wonder ; but accustomed to behold these with indifference, and familiarized with the feelings of our own existence ; struck rather by what is uncommon, than by what is great, incomprehensible wonders are perpetually about us, and in us ; and yet we regard them without admiration and without surprise.

4. *Philosopher unable to comprehend it.*] Indeed the creation, in its various forms, appears to be a subject far above the feeble comprehension of created beings. The Naturalist may with diligence observe effects, and with seemingly great precision, discover secondary causes ; he may talk of organized matter, and animated machines ; he may tell us that all natural bodies, and the globe itself, can by a sufficient degree of heat, be reduced into water, or dissipated into air ; that this he can prove by a chymical process. He may try his experiments upon stones, upon plants, or upon animals ; he may bring them to his laboratory, and there analyze them ; but to recompound their subtle parts, or build up their ruins ; or to comprehend their first formation, eludes the utmost efforts of his ingenuity ; and must make him feel that creation belongs only to the one great and incomprehensible power, which worketh in ways past his finding out.

But the philosopher, matured in wisdom and in years, furnished with the accumulated learning of ages, and experienced in subtle and curious investigations, though he cannot tell his own formation, nor comprehend

comprehend the power he finds within himself of reflection, of speech, or even of moving his smallest finger; though he cannot conceive the insect in its cell, its minute contrivances; the silent tenants of the waters, their simple oeconomy; the birds lifted up on high, and beholding objects from afar; the beasts of the field, their varied sagacities; though he cannot tell their designs, or their powers; comprehend the formation of plants, or subterraneous productions; his speculations in the extensive field of nature, are interesting and curious, and may serve to teach him modesty, by shewing him his weaknets; and from his enquiries result numerous advantages in social life.

5. *Speculations.*] Prone to speculation, he looks with wonder and curiosity on the objects that surround him; and the most common occurrences in the natural world, which we are apt to disregard, from our being familiar with them, these excite his enquiry, and promote useful knowledge. He takes his stand in the sun-shine; he rejoices in the light and warmth of the day; he considers their source; he meets the zephyr, and is refreshed by the breeze; he says the atmosphere is in motion; he listens to sound, he says it vibrates, and considers the cause; he slakes his thirst in the stream, and enquires whence it springs, and how it is supplied; he seeks the shade, contemplates on his luxuriant canopy, and the verdant carpet under his feet; he asks how they annually put on their cloathing, and how they are yearly stript of their verdure; if there be lands that always make this gay appearance; and if there are others continually naked and bare. The deep calls forth his attention; and the secrets of the mine become objects of his researches. He considers the meteors that diversify the face of the landscape, and astonish mankind; the many living tribes of the creation call forth his admiration; he examines their varied habits and structures; and in fine he turns his eyes upon himself.

S E C T I O N II.

Attractions of COHESION, GRAVITY, MAGNETISM, and ELECTRICITY.

1. *Minuteness of the Particles of Matter.*] We have already seen, how naturalists account for the planetary revolutions; and how large a share of the work they attribute to attraction; how they rest the order of the spheres, and of sublunary things, on this prevailing principle, for their support. They tell us of a variety of kinds of attraction, as those of cohesion, gravitation, magnetism, and electricity. It is true, we may observe many very different appearances of attraction; but possibly they may all be only different modifications of the same active principle, by which all things in the natural world are upheld. For ought we know, the original particles of matter abstracted from all combination (if this ever happens or can possibly be) may be all the same; and the smallest atom of matter that human observation can lay hold of, by help of the finest microscope, may be composed of ten hundred times ten thousand millions of the original uncombined particles of matter. It is found, however, that a living animal,

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with wonder and most common occurrence, disregard, from ry, and promote e; he rejoices in source; he meets the atmosphere is and considers the quires whence it contemplates on his feet; he asks they are yearly s make this gay naked and bare. he mine become hat diversify the ny living tribes es their varied upon himself.

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already seen, and how large they rest the prevailing principles of attraction. It ces of attractions of the world are utterly abstracted (y be) may be an observation be composed ginal uncom- t a living animal,

mal, which, under the simplest oeconomy that it is ever found to exist in, is a complicated and wonderful machine, often through its minuteness escapes the finest human eye: witness the animalcula, discoverable only by help of glasses; and myriads there are, no doubt, that escape all human observation. *

2. *Modifications of Attraction.*] All the different properties observable in bodies, may possibly be derived from the particular modes of attraction existing between their component particles; probably a kindred mode of attraction in the bodies, cause some to coalesce; as water with earths; while a dissimilar manner of attraction in others, entirely forbids their union; as with oil and water.

'Tis obvious, that our bodies derive nutriment, and consequently blood, from a strange variety of things, and differently constructed plants, in the same soil, become charged with food, or fraught with poison. Can this be owing to any thing, but the imbibed fluids, receiving somehow a different mode of attraction, from what they before possessed? Chymists inform us, that some inveterate poisons of different kinds, shall, when mixed, so neutralize the obnoxious qualities of each other, as to become an innocent potion; and from different degrees of heat and cold, the fluid water becomes a brittle icicle; and the firm iron a fluid mass; all which seem to prove an alteration in the attraction of the component parts; for the matter being all there, it seems only to have been differently modified.

3. *Cohesion and Gravitation.*] That most simple and beautiful figure, the sphere, which seems to have been chosen in the grandest works of creation, is the form to which the surface of the passive fluids are naturally resolved by the laws of gravitation; while firmer bodies retain their forms by the particular attraction of cohesion, which exists between their component particles when in contact; break the contact, the attraction ceases, and cannot be restored; unless, like ice and metals, it may be first reduced to a fluid; yet the surfaces of firm bodies being made to fit each other very closely, when brought together, will cohere very strongly to each other: thus if a lead bullet be cut in two, and the flat sides fitted and brought close to each other, it will be difficult

* Philosophers think they can conceive it possible for the world, and even the whole universe, to be reduced to a globe of an inch diameter, or even to the smallest atom of matter, merely by bringing the particles of which they are composed closer together; and thus filling up the cavities or pores. They say, it is not difficult to understand, how a body, hard and solid, may be compounded of particles, so formed, that when brought together, the pores between them may be equal to the particles themselves. In this case, the solid matter of the body, takes up only half of the space occupied by the whole. If each constituent particle be formed of other less ones, in the same manner, the solid parts of the body are only one-fourth of the whole. If the less particles be constructed of similar minute ones, the solid parts of the body are only one-eighth of its bulk. If the minute ones are formed in similar manner, of still more minute ones, the solid is one-sixteenth of its apparent bulk; and so on ad infinitum; but the real structure of bodies, we know not. Therefore, the whole material universe may be so constructed, as to be capable of being reduced to the size of the smallest conceivable atom; merely by bringing the particles of which it is composed, into close contact. Thus, when the eye and glasses fail, imagination carries them to minutenesses, which the grosser senses cannot take hold of; and where reason seems rather willing to withhold its assent, than labour to comprehend their nice speculations.

ficult to pull them directly afunder. If large polished fufaces be brought together, the power muft be prodigious that would force them from each other; and fluids, in fmall quantities, feem often to be determined in their figure, more by the attraction of cohesion, than that of gravitation; they will ftand in drops on a flat furface, till it becomes wet, and then they fall; or be heaped in the veffel which contains them, till its fides become wet, the contained fluid then riles higher at the edge than it is in the middle.

Under two different appearances of attraction, viz. gravitation and cohesion, as the moft active principles in the natural world, the fub-lunary works of the creation feem to be fupported, in a far more complicate and curious manner, than the celeftial motions are; though thefe may appear vastly more fplendid. Their motions feem fimplicity, and their laws appear obvious, if compared with the order of things on our globe. The minuteft infect, nay, the blade of grafs whereon it feeds, feems lefs, far lefs comprehenfible in the principles of its growth or exiftence to the capacity of man, than all the magnificence of the celeftial concave. In the heavens we behold ftupendous wonders, which fill us with aftonifhment, and force the poor unhappy fceptic to refer them to fome great and powerful firft caufe. On earth, the works, though more minute, appear curious beyond expreffion; and varied beyond what the imagination can conceive.

Were the attraction of gravitation alone to obtain, whatever may be the prefent convex appearance of the globe, it fhould feem its furface would foon affume the fmootheft form. Exhale by the fun, the vapour might afcend; and condensed by cold, fall in fhowers; but no longer putting forth its branches againft the force of gravitation, the trees muft fall never to rife again. All works of art muft tumble to the ground; and the fea, and its fhores, the river, and its banks, the mountains and their vallies, and even man and brute, with all their powers, and all their animation, muft give up their bodies to the general mixture. Thefe effects, however, feem prevented; and the order of things nicely balanced and fufained, by the feveral partial attractions of cohesion.

To this prevailing principle in the natural world, we may refer the moft compleat and curious productions. This man may behold and admire, and were it in his power to modify this principle according to his wifhes, we can hardly imagine a labour too difficult for his achievements. Indeed, on fuperficially glancing at fome particular effects of cohesion, he might be flattered for a moment with the expectation of producing fomething great; and by their combination, he might hope to effect what fome wrongheads have vainly attempted; he might imagine it poffible to contrive a machine, that fhould work of itfelf, or keep in perpetual motion; and thus enable his fellows to ceafe from their labours: at prefent availing ourfelves of winds and of waters, by lifting a flood-gate, or heifting a fail, we have many ufeful labours performed. The man in authority can fay to the mute animal, that has fubmitted to his yoke, as well as to his fervant, Come, and he cometh; go, and he goeth: but could fuch a machine be conftituted by the art of man, as to keep in perpetual motion of itfelf, we then might fucceed in the moft extravagant attempts. The farmer need then no longer wait for his horfes to break

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up the ground; his self-impelled machine might be brought to perform this laborious business. The mariner need no longer be detained by the calm, nor the citizen by that painful disorder the gout; each in his machine could answer every purpose of navigation or business; and, if weary of being confined to the surface of the globe, I know not but each man in his machine might at once ascend on high, and outstrip the fleetest inhabitant of the air.

The effects of cohesion alluded to, which might make man look for these propitious discoveries, and forget that labour is to be his lot; and that no machine can give new strength, seeing it will take from him time, if it give force to his efforts; and if it give them swiftness, it will lessen their force. The effects are these: water and other fluids, are made by cohesion to rise above their level. A piece of bread, loaf sugar, or a sponge, will attract or draw up a fluid. The ends of a small glass tube, being both open, if one end be dipped in water, the fluid will rise in the tube to a considerable height above the level: now if the tube when it has thus received the fluid, would of itself contract in its diameter, and close up the cavity from the bottom upwards, and open or dilate in the same order, the water might hereby rise and run over at the top of the tube, and thus produce a perpetual motion. But these are effects the art of man can never accomplish. These seem to obtain, however, in the works of the creation, and there only are to be found; on this simple process, which no human art can imitate, all natural life seems to depend; in this way, the herb seems to draw its juices from the earth; and the tree its sap, to the remotest branches. Thus in the bodies of all animals, nutriment seems to be secreted from their food; their fluids circulated; and indeed their every action performed, whether designed or involuntary.

4. *Northern Lights.*] The magnetic and electric influence, seem to us to differ widely from the other appearances of attraction. There is probably a near affinity between the two; and they may be under the same laws as the others, if our senses were acute enough to observe their appearances, and discover their effects. The streamers, or *Auroræ Boreales*, in the northern regions of our atmosphere, are supposed to arise from the electric fire, flashing as it passes from cloud to cloud.*

5. *Load-Stone.*] Where causes are not obvious to the senses, philosophers form their theories by the force of imagination, or the help of analogical reasoning. Thus they have supposed, that the load stone emits an effluvia attracted by iron, and fine or thin enough to pass through gross bodies. That hence a needle lying on the top of a table, may be moved, on applying the magnet or loadstone underneath. That there are mines of this stone in the northern parts of the globe, large and powerful enough to influence its kindred body, iron, all over the world. That the pieces of iron and steel which we see in common use, or lying about, have their poles or particular parts

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* Perhaps the magnetic effluvia may abound in those parts, and concur with the electric fluid in producing these phenomena, by which the electric fire may perhaps be dissipated; and the northern regions thus freed from the dreadful effects of lightning, experienced in other parts.

adapted to receive the effluvia. That they are all making weak though invisible efforts to turn this pole or extremity, towards the mines of the north. That generally not being able to subdue surrounding obstructions, their efforts are enfeebled; but when they are balanced, as the needle in the compass, and particularly when prepared like it, by being touched with a load-stone, they then assume their most natural position; and in maintaining it, gather attractive strength; and thus serve to guide the miner in the darksome cavern, the pilgrim in the desert, and the mariner on the ocean; when stars and land-marks are no longer in view.

6. *Electricity.*] Lightning, or electrical fire, is also accounted a fine subtile fluid: through some bodies it rushes with inconceivable velocity; these are called conductors. At others it stops; these are called non-conductors. The non-conductors are glass, and all vitrified bodies; diamonds of all kinds; balsamic and bituminous bodies, as resins, wax, sulphur, amber, &c. &c. The coverings of animals, as feathers, wool, hair, bristles, silk, &c. by rubbing of these, we may collect around them an electrical atmosphere; and thus excited, they will attract light bodies of the conductor kind; as gold-leaf, paper, straws, &c. When these light bodies have received, or are charged with the electrical atmosphere or fluid, if it be sufficiently strong, they will then fly off, or be repelled, and not be attracted again; till having touched some other body, the fluid is thereby drawn from them. The ancients were only acquainted with this property of attraction in amber; it is found, however, to hold with the other non-conductors; and as this effect is produced by the electrical atmosphere, they collect round them when rubbed, they are called also electrics. Conductors, on the other hand, are called non-electrics. No rubbing or excitation of these, will collect the electrical fluid; yet if suspended by hair, or silk-cord, or supported by glass, or any of the electrics, at a sufficient distance from the floor, wall, &c. (which are conductors, and communicate with the earth) they may be filled with or emptied of their electrical fire. The conductors, or non-electrics are all metals, and the greatest part of minerals; water, and all aqueous and spirituous liquors; and whatever contains in them any of these; as living creatures and animal substances; as leather, bones, shells, &c. trees and plants; thread, ropes, paper, &c. even glass itself, or any of the electrics, if moistened or wet, become thereby conductors, and will not collect the electrical fluid till wiped or dried.

7. *General Presence of the Fluid.*] The electric fluid seems to be so generally diffused, as to enter into the substance of almost all natural bodies. Though insensible of its presence, we have it in ourselves, and the objects that are around us, and the ground that we tread upon, have their share, though we do not perceive it. In fact, it is so extremely subtile, or fine, as to escape the cognizance of our dull senses; and it is only detected in the phenomena and effects it produces, when having been unequally distributed in different bodies, it rushes out of one into the other, in order to restore an equilibrium between them. Thus it is with the lightning; sometimes it rushes from the clouds to the earth; sometimes from the earth to the clouds, as well as from one cloud to another.

8. *Expe-*

8. *Experiments*] Similar effects take place in the electrical experiments of the philosopher. If he places us on a cake of resin, a piece of glass, or one of his stools, with glass supporters, by the interposition of these electrics, or non-conductors, between us and the earth, the communication between the electric fluid in our bodies, and that in the earth, is cut off. He says, we are insulated; and indeed with regard to electricity, we may even be considered as clouds floating in the air. Under these circumstances, by means of his machine, he draws from us the electric fire in our bodies, and we are negatively electrified; or he charges us with still more of the fire, and we are positively electrified. If a person standing on the floor, touch us, at a time when we are negatively electrified, the fire will be drawn by our bodies from the earth, and rush through him, as a conductor; a spark will be seen and heard between us, which may be considered as a miniature representation of thunder and lightning; and both he and we will feel the shock. If he touch us at a time when we are positively electrified, the same effects will take place as before; excepting this difference, the fire will be drawn from us through his body, and pass into the earth; and thus the equilibrium be restored as before. By easy experiments, the electrical fluid is also drawn from and discharged into the clouds; which seems to obviously prove, that the spark procured by the arts of the philosopher, and the lightning in creation, are identically the same.

S E C T I O N III.

OPTICS, LIGHT, HEAT, COLOUR.

1. *Subtlety of the Rays of Light.*] Light is thought to be a body or fluid subtle enough to pass through the atmosphere, and all transparent bodies in right lines; how this can possibly be, is unexplicable: and indeed one would have thought it an inconceivable idea. As shot thrown upon a heap of cannon balls, will find its way to the bottom in very crooked lines; so possibly may it be with the rays of light, passing through transparent bodies; but the endless curves that are in its rays, may be too fine for our dull senses to observe. However, the offering this conjecture, or indeed any other, to explain the subtle nature of light, seems attended with a thousand difficulties, which human sagacity will hardly remove.*

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* Our idea of any kind of body or matter, necessarily is, that it occupies space, and precludes all other bodies from that room which it holds itself. If we suppose a quantity of matter, as glass, the atmosphere, &c. made up of particles, with intervening pores, we may suppose the rays of light subtle enough to pass through the pores of such a body; but as in filtering of fluids, or sifting of powders, we suppose the cavities or holes to be filled up by the body, as it passes through in the operation, it should seem, we would naturally conceive, the rays of light in passing through a transparent substance, to fill up the pores. This, however, seems far from being the case, with the inconceivably subtle emanations of light. The current of these, as it passes along, appears capable of being dilated to any extent, or reduced

2. *Light produced from Fire. Heat from Motion*] As far as human observation reaches, light appears to be derived from fire; and fire, naturalists tell us, is produced only by motion. Thus the fermentation, or the rubbing of bodies together, excites in them heat; and according to them, heat is a very brisk agitation of the insensibly minute particles of the body, which we denominate hot; and the cessation of that motion is the utmost degree of cold. A kindly temperament of heat and cold, or in other words, a proper degree of this imperceptible stirring of the minute particles, seems necessary in producing and supporting all the varied works of creation: and excess of either heat or cold, effectually destroys all growing and living bodies.

Heat dilates or expands bodies; and on this principle, the thermometer has been contrived; an instrument for measuring the degree of heat Pl. III. Fig. 1. The thermometer is generally a tube of glass, with a hollow globe at one end, filled with mercury, or some other fluid: according to the degree of heat, the fluid in the globe is expanded; and it consequently rises in the tube, which is graduated, and thus tells the precise degree of the heat. To a proper degree of heat, liquids owe their fluidity; by the prodigious and forcible expansion of water, when heated into steam, massive works are carried on, as in the case of the fire-engine; and from what we observe in water's

reduced to the smallest compass; by means of a convex glass, the rays of the sun can be brought together to act with such force, as even to melt metals; and by the intervention of a concave one, its beams can be so dissipated, as scarcely to be felt. Rays of light seem also to pass freely through each other in every direction.

If a couple of lighted candles be placed on a table, in a room, and half a dozen people sit down on the opposite side of the room, the two flames shall be distinctly visible to each of them. Now if the eyes of the spectators, and the flames of the candles be on a level with each other, the rays proceeding from the candles, to impress the image of the flames in the eyes of the spectators, will obviously intersect each other in a variety of angles. It may be said, 'tis true, that though these rays somehow pass through each other, yet the objects are hereby rendered less vivid. That if one of the candles be put out, the other will be vastly more distinct. That thus the stars shine with a bright lustre in the night, which we could not distinguish when the sun shined around us the splendour of day.

It is remarkable, however, that when the rays of the sun are made by an optical instrument, to converge to a particular spot, with such force as to melt metals, that however impetuous the torrent of light may be there, through that very spot which it would be instant death to get into, rays of light will pass freely from objects beyond it to our eyes. These effects we may observe: and the philosopher, though he may be able, by his improvements, to give artificial youth to the fading eyes of old age, perhaps the causes he never will be able to unfold.

It seems a strange property in light, that it refuses to pass through porous bodies, such as white paper and linen cloth; yet if the particles of these be brought close together by glazing, they assume a degree of clearness: and if their pores be filled up by being wet, oiled, or varnished, they become very transparent. It is supposed, by the introduction of this new matter, the pores or cavities of the paper become filled; and the body being thus consolidated, the light has an opportunity of passing from particle to particle, through the whole substance, without the interruption of the cavities which were before in the way. It may be asked, why do not the rays of light, shoot across the pores which lie in the way? We may answer by another question: Why does not water immediately drop from the projected beam or stone, but rather follow the lower side of it till it takes the wall? In fact, the stream of light, in passing through a medium, or transparent body, may follow the surfaces of the particles which compose it, through all their minutenesses; and by their being uniformly close to each other, find its way through, in a more steady, easy current, than it could have done when the pores or cavities lay in the way.

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ter's becoming hard through the frost, it should seem, that absolute cold would stiffen all natural bodies in frigidity.

3. *Bodies with respect to Light and Colour.*] Light seems to shoot out most naturally in right lines; and only deviates from these, as it meets with interruptions from bodies that reflect, refract, or inflect it in its course; and by the separation of its rays, present us with colours. Bodies with respect to light, are accounted, 1. Luminous, or emit light from themselves; as the sun, fixed stars, or flames. 2. Transparent or pellucid, rays of light pass through these, as the air, glass, &c. 3. Opaque or dark; these reflect the rays of light, as specular bodies or mirrors; the moon, a wall, &c. But opaque bodies, being made thin and close, become pellucid; the texture of transparent ones being disturbed, they become dark; heat makes them luminous; and to deprive luminous ones of heat, would be, in other words, to extinguish their light, or render them opaque. Philosophers say, the rays of light themselves are not seen, but by them, the bodies from which they originally come, as the sun, a fire; or the bodies from which they are reflected, as the moon, a field. At the same time we are told, rays of light are of different colours. That in the sun's light they are so compounded together, as to produce the fine tinct of day. That opaque bodies, by having a certain disposition or fitness in their particles, for reflecting particular rays, give us the idea of colour in themselves. That when we are supposed to see figure, in truth we only perceive the termination of colour. That whiteness in bodies, is but a disposition to reflect all colours of light, nearly in the proportion they are mixed in the original rays; hence whitened walls make the lightest rooms; on the contrary, blackness, is only a disposition to absorb or stifle without reflection most of the rays of every sort that fall on the bodies; thus holes and fissures, which reflect no light, but rather swallow it up, impress upon us the idea of blackness.

If the eye be placed in the medium, through which the rays pass to it, the medium is not seen at all; for instance, we do not see the air through which the rays come to our eyes: but if a pellucid body, through which the light comes, be at a distance from our eye, we see that body, as well as the bodies from whence the rays come, that pass through them to come to our eyes; for instance, we do not only see bodies through a pair of spectacles, by the transmitted rays, but the glass itself, by those rays which are reflected from its surfaces.

The beautiful colours of the rainbow, appear visible in viewing the several sorts of bodies; as in the luminous flames of a furnace; in stained glass; or in plain transparent glass of unequal thickness; and on the opaque iron of polished surface, after a certain degree of heat; on silks, feathers, &c.

4. *Reflection, Experiments.*] That light is reflected from different bodies, is obvious. Coloured cloaths throw their hues on the walls they approach; and the mirror reflects the image of the object from its surface, in an angle equal to that in which it fell. Thus Pl. III. Fig. 2. standing directly before a plane or flat mirror, we are presented with a faithful picture of ourselves; standing obliquely, it is reflected obliquely, and may be received by another in an opposite part of the room; whose image we shall likewise see at the same time.

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Thus holding up a concave mirror before us, the hollow on every side takes up the object, and throws on the eye a face which may divert or affright us with its monstrous appearance. Turn the mirror to the sun's beams, the rays are by it converged to a particular focus or spot; where they act upon bodies with the fury of a furnace. On the other hand, hold up a convex mirror, the reflection of the face is a miniature picture. Turn it to the sun, the rays on no side will remit to the observer, more than one mere spot of light, or very minute representation of the luminary, which even the eye may receive without danger or inconvenience.

5. *Refraction. Experiments.*] Thus obvious appear the laws of reflection. Those of refraction seem not to be so generally understood or regarded; however there is hardly a child that has dabbled in the water, but what may have observed with surprise, on plunging its hands or little play-things in the fluid, they have seemed to be broken or very much bent. This is produced by what philosophers call refraction. They observe that light, in passing out of one medium into another, of different density, is broken in its course, or deviates from the line in which it first set out. Thus light the candle, in Pl. II. Fig. 3. the part A in the basin, shall be enlightened by its rays; but the rest will necessarily be immersed in shade. However, fill it with water, and without moving either candle or basin, the bottom of the vessel will then be illuminated. In fact, it seems, the rays of the candle are refracted on their striking on the surface at S, and enter the water in the angle at C S B, instead of pursuing the straight direction they set out in: Thus the atmosphere being a transparent body, as the rays of the sun fall obliquely on it in the morning, they are transmitted to us before it has actually risen; and in like manner in the evening, they shine on us after it has set below the horizon. If in our experiment, the candle be removed, and the eye fixed at O, the part A, in the basin, when empty, shall be visible; but the bottom will be hid by the edge next the eye. A sixpence, a halfpenny, or any small body lying on the bottom, will be also invisible. If water be poured in, without altering the eye, or the vessel, the bottom and the piece of money will both become visible; they will seem to the eye to rise in the fluid. In fact, it seems, the rays reflected from objects in the water, are refracted on their striking on the surface, and enter the air in a direction more oblique than that which they pursued in their course through the denser medium of water. This may account for the apparent distortion of bodies, when dipt in a fluid; and from the principles of refraction and reflection, simple or combined, the variety of optical improvements have been derived. Thus by adopting glass instead of water, and varying its forms, a variety of curious effects are produced. In Pl. III. Fig. 4. let C be a flame, G a glass, or lens, with its edge towards us; T a tablet or board, to receive the rays. The rays in *conc.* will be refracted in passing through the glass, and brought near together or made to converge; in *plan.* they will be refracted, and again resume their diverging direction. In *conv.* they will be refracted, and their divergence increased; and accordingly the tablets will be differently illuminated. In *conc.* the light shall be collected to a small spot, appearing very bright. In *plan.* it is spread over the surface of the tablet; and in

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cor. we may see a small portion of the rays faintly illumines the whole surface, while the rest diverge, or are refracted beyond the extremities of the tablet. Now if we remove the candle, and fix the eye in the place which the flame occupied, those parts of the tablet which were before enlightened by the rays of the candle, shall be visible to the eye; and the small spot on the tablet in *conc.* which before was illuminated, shall by its refraction in passing to the eye, appear as much larger through its convex glass, than the whole tablet in *conc.* does on the same principles through its concave one, as it received a greater share of the rays from the candle in the former experiment. In other words, it shall fall in a greater angle on the eye, as may be seen by the lines which shew the course it takes in passing to the eye, as well as that of the rays in the experiment with the candle. The dotted lines represent the course that the rays would have taken, if no lens had intervened.

6. *Formation of the Eye, and its Illusions.*] The eye is found to be an optical instrument, of exquisite structure, furnished with a variety of refracting mediums, comprehended under different surfaces; the orbit or cavity in which it is contained, is furnished with a loose fat, in which it rests or moves with great ease; and on the fore part, the eye is covered with a fine membrane, called *conjunctiva*, which being reflected or doubled back from the ball or eye, also lines the eye-lids, thereby effectually preventing any extraneous body from getting in behind the eye in its cavity, as well as lessening the friction between the eye and its lids. The eye-lashes seem obviously designed for fanning off dust; and that which escaping these, falls on the eye, is washed off by the water which continually flows from the lachrymal gland, in the upper part of the orbit; and which is nicely diffused over the smooth glassy surface of this optical instrument, by the closing of the lids, to keep it transparent, even when we are not conscious of doing it. White

Pl. III. Fig. 5. The membrane T, which covers the apple of the eye, called from its transparency the tunica cornea, or horny coat, further extended, is opaque or sclerotic, forms the white, and serves as a case for the internal humours. Immediately under the cornea, lies the Iris, which in different people is of different colours: it has a hole P, in the centre, for admitting of light, or objects; this is called the pupil, or black of the eye. Where this is wanting, the surgeon's knife sometimes lays it open. Beneath this hole, floats the chrystalline humour C, of a roundish form, vulgarly called the sight, with the vitreous humour V behind it, and the aqueous one A before, to defend it from being bruised in rubbing of the eye, &c. The optic nerve N from the brain, enters the back part of the eye, where being expanded on the inside, it forms the retina R, as a fine web, to receive the picture or impression of the object; and this impression is what gives to us the sense of vision. Yet essentially necessary as the chrystal appears to be to vision, when a cataract has clouded the surface, the patient is couched; or, in other words, the eye is laid open; the chrystalline humour being then taken out, the aqueous one fills up its place; and answering as a lens, gives sight to the blind; but this not refracting so strongly as the chrystal, a convex lens is used to supply the defect.

Clumfy

Clumsy and confined are the instruments of art, if compared with this delicate and wonderful organ. They, it is true, help out the deficiency of sight. The microscope enables man to look far down on the minute works of the creation; and the telescope lifts up his view to the wonders of the firmament; but these are fixed to certain distances; one suits to measure the magnitude of a planet; another to examine the formation of an insect; but the eye wonderfully adapts itself to every distance within its own extensive sphere. Without distraction, it alike surveys the lettered page; lays hold on the extended landscape; and views the stars. In what manner it accommodates itself to these very different distances, seems not to be thoroughly understood by anatomists; it seems, however, to be the idea, that the eye becomes more flat in straining after remote objects, and more convex in prying into minute ones. In old age, when the eyes lose their fulness, become flat, or incapable of adapting themselves to look at minute objects, they find relief in the use of convex spectacles; while near-sighted people, on the contrary, having their eyes naturally fitted for viewing minute objects, near hand, have their vision extended to a distance by the help of concave glasses.

Every body knows, that too much light disturbs the eye: and that too little does not answer the purposes of vision. The efforts it makes to bear with the excess, and to accommodate itself to the deficiency, are not so generally noticed or known. In looking at a luminous body, as the flame of a candle, the pupil of the eye, or hole in the iris, becomes very small to prevent too great an influx of the rays: on looking at objects but faintly illuminated; and especially in getting into darksome places, the pupil is dilated, that it may the more copiously receive what little light the faint object or the gloomy situation may afford. If we look up at the sky, and then suddenly cast our eyes down on the ground; or if we look at the flame of a candle, and then beneath the table on which it stands, or on any dark object, a byestander may distinctly observe, the visible contraction and dilatation of the pupil. Thus admirably does it adapt itself to the duties imposed on it; but this is not all that is wonderful in the organs of sight; to say nothing of the muscular fibres within the nice cord-like tendons behind, passed as through their pulleys, and helping to roll the eye-balls in their sockets; we may yet dwell with wonder on their internal structure; remark their seeming imperfections and illusions; and observe with surprise, how we learn by experience to detect their deceptions, and derive just information from their errors or deviations. There is necessarily a hole in that part of the retina, where the optic nerve entering the eye, begins its expansion. Pl. III. Fig. 6. This spot is incapable of receiving the impression of vision, as may be discovered by an easy experiment: if we close the left eye, and stretching out our arms, hold up our two thumbs before the right eye, still kept open, the thumbs being close together, they will both be visible: if we keep the eye stedfastly fixed on the left thumb, and at the same time carry the other one outwards, the right thumb shall at a few inches distance from the left one, become invisible. Carry it farther distant, it shall again appear in view to the eye, still looking stedfastly on the left thumb, in its fixed situation. The experiment may be made with greater ease and nicety, by sticking up
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small pieces of white paper against a dark-coloured door, or dark pieces against a white wall; or by lighted candles properly fixed at greater distances than we can hold our thumbs; and fixing the eye proportionably farther off, this defect of sight in either eye, is made up by the help of the other; for the object which falls on the optic nerve of one eye, necessarily from their construction, falls on a distinct part of the retina in the other. But our having two eyes, though it gives us more extensive vision, it seems, it naturally presents to us illusions, which experience only rectifies. With whatever unity and precision single objects may appear to our direct view, this it seems is not their natural appearance. Naturally they appear double to us; and it is only the touch that has corrected the deception; and in spite of appearances told us the truth. Those parts of the retina immediately opposite the pupils, may be called the parts of direct vision; upon these we receive those objects our eyes most stedfastly behold; and however double the objects might appear in the beginning, the impressions they make there, give us the simple idea of singleness. It is different with the other correspondent parts of the retina; objects falling there we but faintly observe; and their impressions, though they appear to us double, are scarcely observed. An easy experiment, however, will shew, that this faint illusion actually obtains.

If we fix upon an object on the opposite side of the room, suppose a candle, or a hat; and between the object and the eyes, hold up a thumb; if we bring our eyes to bear directly on the thumb, the distant object shall faintly appear double; if we look directly on the distant object, the thumb shall seem as two.

Pl. III. Fig. 6. The images of objects are painted on the retina of the eye in an inverted position; hence some have imagined, that children see objects upside down; and that this deception is corrected by the feeling, as they grow up. Others seem to have more consistently concluded, that we always see objects reversed: that in fact the sky and the ground are turned upside down to us, if the expression may be allowed; and that our other senses are accommodated to the illusion. That up or down, right or left, &c. are merely relative; and that all our sensations in the matter, being relatively true, the reversion is without inconvenience; and the deception, in fact, amounts to nothing.*

Prismatic

* In opposition to this strange and seemingly absurd doctrine of the philosophers, we might with the evidence of our own senses, and the common consent of mankind, venture to disbelieve their report, without fearing a general imputation of ignorance; and in support of the common opinion, thus we might argue: If we imagine a person at some distance behind a wall, looking through a hole in it, at a tree growing before it, we may readily conceive, how it would be necessary for him to stoop, in order to see the top of the tree; and to raise up his head in order to see the bottom of it. Were he so near the tree as to need a ladder, to discover the top, he must ascend to see it, and come down again to observe the trunk; yet though he stoops in one case, and ascends in another, to see the top or bottom of the tree, he has the same conception of its position in both cases.

If a traveller pass the hole towards his right-hand, while behind the wall, he must move to the left, if he wishes to keep him in view; yet does he justly conceive, that the traveller passes towards the right, though he had to move the contrary way to make the observation. Thus as it is necessary for objects to be inverted in passing to the retina, the very reversion may perhaps give us the just information of their true position in nature.

7. *Prismatic Rays.*] That colours are originally in the rays of light, is shewn by a variety of experiments. If light be received through a hole in a window shutter, into a darkened room; and to the hole there be applied a glass prism, as in Pl. III. Fig. 7. the light shall no longer follow the direction in which it entered the room; but be refracted in its course, by passing through the prism; and the several coloured rays of light, which compounded together produce the fine white tinct of day-light, shall be separated according to their different degrees of refrangibility; the red rays making the strongest effort to pass in a right line, shall be least refracted in passing through the prism; and the violet-coloured ones, being most easily refracted, shall deviate the farthest from the line in which they first entered the room. If a tablet, or sheet of paper, receive the light after it has passed through the prism, the impression of light, or spectrum, on the tablet, shall be of an oblong figure, variegated with colours, in the following order: the extremity of the spectrum, which receives the least refracted rays, shall appear intensely red, then orange, then yellow, then green, then blue, then indigo tincts shall succeed; and, lastly, the most refrangible violet shall terminate the other end of the spectrum. If the tablet be perforated, so as to let some of these coloured rays pass through it, an object held behind the tablet, shall not be of the colour it appeared in the finely compounded light of day; but of that colour of the rays which are made to fall on it. In this way, the violet may be made to appear red; and the orange-coloured may gold to assume the tinct of indigo. It seems, however, not to alter its colour without a struggle; wherein the rays lose some of their force. The colour thus imposed upon the object, shall appear less brilliant than it would on white paper; but in its own coloured rays, the object shall appear of a more vivid hue, than it does in day-light; the spectrum, however, produced by the prism, is not coloured with seven different stripes, distant from each other; the gradations between the several colours are so fine, or the tincts are so nicely blended with each other, there is no such thing as a distinct division between any of them. The rainbow produced by the sun-beams, striking on the falling drops of rain, being there refracted and reflected to the eye, the rainbow is on the same principles of the same variegated hue with the spectrum. In like manner, the same colours are produced, by blowing globes with soap and water; and it is remarkable, that when one of these bubbles has been blown in the basin, and let to remain till the water subsiding from the top, it at last becomes so thin as to burst, there successively appear different colours at the top, which spreading on all sides, fall to the bottom; the least refrangible colour, red, first makes its appearance; after this a blue emerges; red appears again; afterwards blue; thus, at different thickneses, in its throwing off the several orders of colours, the least refrangible still continue to be reflected first; then those that are less so, for several times; till it gives a greater variety of colours, as yellows, greens, purples, &c. at last becoming so thin as scarcely to reflect any; it looks black, and the bubble bursts. From these observations, some curious experiments have been made, and some ingenious conclusions drawn; that colour in bodies must depend upon the size and density of their particles. An

analogy

analogy has also been imagined or discovered between colours and musical notes ; or between the refractions of light, and the vibrations of sound.

SECTION IV.

PHONICS, PNEUMATICS, METEORS.

1. *Elasticity, Winds, Sounds.*] The air, which on all sides surrounds our habitable world, is found to be an elastic fluid ; its density or gravity therefore will be very different at different heights ; as in fleeces of wool piled one above another, the lowest will be much compressed, while the highest remains in its full state of expansion : through its extreme elasticity it is liable to be put in motion from numberless causes.

Different degrees of heat and cold contract or dilate this fluctuating body, and produce the variety of currents, from the gentle gale to the dreadful tempest and rapid whirlwind.

By the strokes of hammers, and the vibrations of strings in this element ; by its being thrown out of certain cavities, and modified in its passage ; as in the voice and wind instruments of music it receives an undulatory motion, and fills the cavities of the ears with its vibrations, which echo to the mind the bewitching melody of musical sound, or fill it with pain by the unkindly jarring of discordant vibrations.

2. *Music, and its Effects.*] Not man * only, seems susceptible of the powers of music ; birds serenade and solace their mates with their melodious warblings ; the dogs animate each other in the chase with their mutual cries, and even inanimate bodies fitted for producing sound, as bells, the strings of instruments, &c. when a note is struck according with their own, they join the chorus and also found.

* The child may, with an undescribable and secretly pleasing satisfaction, practise its little fingers in grasping and turning in a thousand ways its smooth and glassy coral ; old age may find a fainter, but similar amusement, in handling at leisure the time-worn smooth head of his walking staff ; the beau and the soldier may forego their more ardent pursuits, and play for a while with their trinkets and trappings ; some may with a degree of pleasure hang on a perfume, and others delight in the more substantial enjoyment of a feast ; the variety of beauty, the contour and relieve, or the form and colouring, may captivate the eye, and afford a delight ; the gloomy scene may impress a degree of melancholy, and the lively prospect animate our spirits ; but of all the powers in the natural world, the airy magic of music seems most to triumph over the passions of mankind. Naturalists have considered a dissimilar formation in the organs of hearing as the cause of what is termed an unmusical ear ; they have thought that a person of such condition does not hear alike with each ear ; and perhaps here is no one living whose organs of hearing are perfectly formed, can declare himself entirely free from the dominion, or unsusceptible of the powers of music ; in fact, all nations seem naturally pleased with it : its charms have been romantically described as capable of softening rocks, and bending the knotty oak ; and

found. Those animals that have submitted to the reins are encouraged under toils by the voice of the driver; and animated by shouts, on the precipices of lofty mountains, with riders on their backs, perform feats of desperate address and wonderful agility; as on the Alps and the Andes, the hardy and artful mules, sliding down frightful steepes with an insinuating and steady motion, when fear in the rider, and ill-timed efforts to save himself, would throw the artful creature off its bias, and they would both be overturned, and dashed to pieces in the fall†.

3. *Melody, Harmony, Discord.*] According to the language of musicians melody may be defined a pleasant and agreeable succession of sounds: Harmony, the sound of different notes at the same time, which accord with each other. The former appears to have an origin immediately in nature; it prevails in some degree in all languages, and in a very high degree in the Chinese, where words vary in their meaning according to the tone or note wherein they are sounded. Melody formed the music of the ancients, and as this was most simple or natural its effects were most wonderful; to this the moderns have added harmonicks; these have been accounted of Gothic descent; it is remarkable however they were found in the music of those sequestered descendants of Adam, the natives of the south sea islands. Discord is the sounding together, or indeed in succession, notes that jar with each other.

How it happens that some sounds jarring with each other disturb with their discord, while others naturally please with their melody, seems beyond our conception; perhaps, however, if we could but detect the similitude as it waves along, we might observe, in the varied

fabulous history has not failed to tame wild beasts, build up cities, and a thousand extravagancies, by the sounds of the lyre.

However, without giving weight to these fictions, and without going back to the days of the ancients, the effects of modern music upon some may fill us with wonder; whether we observe it thrilling them into softness and effeminacy, or bracing up their nerves, and rousing them to action; working them up to revel in the noise, or enter with ardor on feats of danger; and what might make humanity shudder, steeling their hearts to rush without remorse on the bloody carnage of their fellows, amid the tumultuous horrors of war.

If such be the effects of musick upon the passions how dangerous then must it be to tamper with so fascinating or alluring a thing! and how easily may we be made to imagine that we feel all the kindly train of gentle emotions or of noble sentiments, and even devotion, when in fact our weaknesses are only imposed on by the melody of sounds, and when the intervention of disagreeable sounds would prove our happiness and our affections to be unsubstantial and imaginary, nay, even awaken in us the most turbulent and tormenting passions.

† Indeed noise alone seems naturally to have a great effect on the spirits of animals, and especially of man. Without much reasoning on causes and effects, the rollings of thunder fill him with awe; the winds scowling over the hills, or whistling through the crannies, bring on him a pleasing delirium of melancholy, while the distant sounds which associate with them the idea of company naturally cheer him: pleasing would it be if they never gave him reason to be afraid of an enemy; but how have I seen the countenance fall, on the sound of distant guns, in people safe upon land, and when the vessel was out of sight.

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varied undulations of the water, a clumsy representation of the vibrations that in the rarer medium of air impress upon us these different sensations.

There are few that have not sometimes amused themselves by throwing stones into the water, and observed, that when big stones are thrown in, its surface is agitated by large circular swells; and when less ones are cast in, smaller waves spread also in circles. It seems not very difficult to conceive, if stones of different sizes are thrown in at once, their waves might either so fall out, as kindly mingling together, they might produce an agreeable motion, or discordantly clashing against one another, soon destroy each other's undulations. In these contrary effects, observable in the water, there is perhaps something very similar to those invisible ones produced in the atmosphere by the different vibrations of harmonious and discordant sounds; however, in the recoiling of waves from the edge of the water there appears a pretty representation of echo.

4. *Circulation of Notes.*] We have already seen how a sort of circulation takes place in the changing soap-bubble, as it becomes of different thickneses; in varying of sound there seems also to be a kind of circulation of notes; and perhaps if our senses were sufficiently delicate or fine to detect the analogy, we might discover the circulation of sounds and of colours to depend upon principles in creation, akin to each other §.

5. Sound,

§ Musical instruments are superfluities, and minister to dissipation; adopting these however instead of the voice, we may by them investigate something of the nature of sound, and if the passions be not hereby hurt, perhaps the mind may be for a while rationally amused in contemplating this unexplicable part of creation, the circulation of sounds.

If a musical string be struck, giving a certain sound, by rendering the cord or wire shorter or tighter the sound becomes shriller or higher, till at length it seems, somehow or other, to give the same note it founded at first; though it has continued still to ascend. If a flute be blown or filled gently with all the fingers down it gives a certain sound or note, on lifting up these successively to the top the notes ascend; if the fingers are closed down again upon the holes, and disposed of in the same manner as before, with the blast increased, the sounds still continue to rise; a third time they may be closed upon the instrument, and for a while listed as before, the notes still growing higher by a forcible blast; yet when the fingers are alike disposed, whether the flute is filled with a gentle, firm or forcible blast, the notes somehow or other appear to be the same; 'tis true they are of very different heights, and naturalists have called them octaves to each other, from their having divided the intermediate variable sounds into seven distinct divisions. As we have already seen the variegated prismatic hue on the rainbow divided into seven distinct colours, one might think their divisions altogether arbitrary and artificial, but they appear to be natural; and it seems remarkable, that the nations who have given themselves to the study of music have discovered in it these distinct divisions of sound; the principles in nature upon which these distinctions depend seem as unexplicable in philosophy as the laws which give to the several rays of light their different colours.

These divisions or notes seem mostly to accord with each other, or to produce a sort of harmony when sounded together; one or two however are discordant with the rest, and sounded with them produce a horrid jarring; these jarring tones are notwithstanding made use of in music, and serve to give a

5. *Sound, Improvements.*] It is well understood that sound is produced by putting the air into an undulatory motion, and vibrating bodies, as bells, &c. when struck in the exhausted receiver of an air-pump, or in vacuo, are found not to sound. Were the particles of the atmosphere as elastic as those of light, it should seem that sound would move with equal or greater velocity than light itself; but a slight observation informs us the reverse is the case: if we observe at a distance any one striking with a hammer or hatchet, we may see the tool ascend after the blow before we hear the sound from the stroke; and in the firing of guns afar off, and the discharge of the electric fire in the clouds, we see the flash long before we hear the report or the thunder.

But though sound does not move with the velocity of light, nor pass like it through transparent solid bodies, its impulse is sometimes felt where light does not sensibly come; for instance, the company in the next room, we may hear them converse, though their fire and their candles be shut out from our view: and echo, from an opposite building or hill, while it surprises and diverts, shews that sound like light is capable of being reflected, and in the reflection it is found in some measure under similar laws; in fact, the study of phonics, while it has furnished the world with some intoxicating luxuries, it has also produced some useful knowledge, and instruments of real service to mankind. The dull ear derives aid from the simple contrivance of an hearing trumpet; and by help of the speaking trumpet the mariner is enabled to cheer and diversify his solitary voyage, in hailing his fellow-travellers on the ocean, when without such an instrument the noise of the waters, or the distance of the vessels, would have necessarily shut them out from the pleasure of the salute, and the benefits they derive from the mutual information*.

6. *Diffusion*

lively variety to that bewitching art. As in nature, or on the canvass, the abrupt precipice, the broken cliff, the glaring light, or sudden shadow, diversify the landscape, and carry the eye with increased pleasure to the softer tincts and more gently flowing outlines: so the harsher sounds in music seem for a moment to arrest the listening ear, and keep it in suspense, that it may be the more effectually surprized and delighted with succeeding sounds of melody. These effects may be easily observed, and were it right to give a loose to the passions, and revel in the most joyous pleasures, the intoxicating effects might as easily be felt in their full force; we may guess at the causes of these surprising effects, but like the other parts of creation, they seem too fine for our gross senses ever fully to comprehend.

* The Paul's Cathedral in the city of London furnishes a proof that the vibrations of whispers, however faint, when dispersed abroad in the air, may be so collected together as to surprise and disturb with the noise. In the dome of that stately building there is a circular gallery that sweeps round the concave; strangers on entering this part of the building are struck with surprise at the grandeur of the scene which art has produced. When the first moments of astonishment are over, the whisperer directs the curious to walk round the gallery, and take their seats opposite to him, he turns about and whispers to the wall, his whispers on each side sweep round the dome, clash together amidst the listening strangers, with a noise, which though expected, hardly fails to surprise, or suffers the whispering gallery to sink in its fame.

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6. *Diffusion of the Atmosphere.*] Though the air is a body which escapes our sight, we every moment have proof of its existence, without the help of sound; the aerial fluid surrounding on all sides our habitable world, insinuates itself into the pores, and mixes with the substances of the variety of bodies; without this great necessary to life the several tribes of living creatures cannot subsist, even the mute tenants of the water, and the minutest insects cannot live without it, and vegetables deprived of this vivifying element cease to grow, become flaccid, and die; without this, fires soon go out, and even gunpowder will not fire in vacuo, or in a receiver exhausted of air.

7. *Weight, Barometer.*] That the atmosphere has body, is obvious from the force of the wind; and that it also gravitates, or has weight, clearly appears from light bodies, as smoke, clouds, &c. floating in it; a glass globe when exhausted of air, weighs lighter than before; in fact, the atmosphere is found to press upon the surface of our globe, with a weight equal to that of a sea of quicksilver, surrounding the world 29 inches deep, or one of water 30 feet deep. Philosophers seem to have derived this information, from the observations they have made upon pumps; if a pump be inserted in a cistern of water for pumping it off, the piston or box on being drawn up, would make a vacuum in the hollow of the pump; but the atmosphere pressing on the surface of the fluid, it is thus forced up by the weight of the air, to fill up the vacuum; but when the water beneath the box, is raised in the pump thirty feet high; the column of water being equal in weight to that of the atmosphere pressing on the surface of the fluid, they necessarily then balance each other, and the water rises no higher: In like manner, Mercury may be raised twenty-nine inches, and then it, on the same principles, ceases to ascend; but the force necessary to raise the fluids to their utmost heights, in tubes of a given diameter, suppose an inch, is easily ascertained, and that force, or a weight of air equivalent thereto, every inch of our bodies must necessarily sustain; hence the load of air which presses on the surface of an ordinary man's body is equal to forty thousand pounds weight: thus, were it not for the air within us, we should be crushed to pieces, by this load of air; and, were it not for this external pressure, we should burst to atoms in the internal air taking vent from our bodies. The air is not always of the same density, and its changes in this respect, sensibly affect our bodies; they are braced strong and vigorous when the air presses forcibly upon them; and when the air is light they are languid, relaxed and feeble; to determine the weight of the atmosphere the barometer has been contrived, Pl. III. Fig. 8. this instrument is simply a glass tube about thirty inches in height, closed at the upper end, and filled with mercury, with its open and lower end inserted into a cup of mercury, or its lower end may be enlarged to a ball or bottle, and turned up in place of the cup; now when the air is so heavy as to keep up the clouds and give us fair weather, it presses on the quicksilver in the bottle or cup, and forces it up to a good height in the tube; and when the rain must descend, through the atmosphere's becoming too light, the pressure on the quicksilver in the cup decreases, and the barometer, or the quicksilver in the tube falls, and thus predicts

the changes in the weather. This instrument is also used in measuring the heights of mountains; as the air becomes lighter the higher we ascend in it, so the higher the barometer is taken up, the more the quicksilver shall necessarily fall; and where the acclivity may be so rude and irregular as to forbid the application of a mathematical apparatus, this instrument by the fall, shall tell pretty exactly the height ascended: it sinks about the tenth of an inch for every ninety feet we ascend, or an inch for three hundred yards. Such is the elasticity of the air, that what is contained in a nut shell, may easily with heat be dilated into a sphere of unknown dimensions; on the contrary, the air contained in a house may be compressed into a cavity not larger than the eye of a needle.

8. *Theatre of the Meteors.*] These effects take place with the atmosphere which we breathe, and which appears to be one of the most compounded bodies in all nature; it has been considered as one large chymical vessel, in which an infinite variety of operations are continually performing. As organized bodies, we see, receive of this general store, so also they are found to furnish their copious supplies: plants and animals, earth, waters and minerals, from their secret beds, are found to emit their several vapours or effluvia, which, mixing in this vast alembic, float a while in common. In this great and general mixture, found so absolutely necessary to the support of all living things, all other bodies are found to decay; exposed to its influence liquors lose their spirit; cloths their colour and firmness; metals rust, and stones in time moulder away. In this great theatre the meteors make their appearances, and act the part allotted them in the works of creation; here is collected the gentle dew and the hoar frost; here clouds are gathered and carried along by the wind, to refresh the earth in falling showers, give rise to rivers, spread vast inundations of water o'er the fields, or lay them under a covering of snow or hail; here mock suns, mock moons, halos and rainbows make their gaudy but transitory appearance; and here the waterspout, dreadful to the mariner; here rolls the dreadful thunder, here lightnings dart their livid flames, and sometimes, striking upon the earth, destroy its productions, fill its inhabitants with terror, and sometimes strike them dead; here the auroræ or streamers, the ignes fatui, or wandering fires, called also Jack with the lanthorn; here falling stars, as they are ignorantly termed, or fiery balls of various sizes, appear with splendour during the gloom of night and astonish mankind, who too often seem willing, with superstitious awe, to find portentous omens of dire calamities in these curious phenomena, rather than investigate their causes or discover their uses.

In the transitory meteors, making their sudden gaudy and unsubstantial appearance, we see a lively picture of all natural things. As flies the meteor through the skies, and spreads its long and gilded train, and soon dissolves again to common air, so is it with us, so with the most superb monuments of art, and so with the grandest scenes of nature. Wherever we turn our eyes, all appears unstable, all in motion, and to the general circulation the most durable bodies seem to owe their origin, bones and metals seem to be concretions of soft substances, and both are found to rust or moulder away;
plants

plants and animals soon arrive at maturity, and as quickly hasten to their dissolution.

9. *Vapours, Diseases.*] As the atmosphere is found to be a general compound, so from accidental causes in particular places the mixture is often partial; different supplies of vapours and exhalations from animal, vegetable, mineral and other substances, and different degrees of heat and cold, all tend to affect this element; as any of these singly prevail they render it unwholesome and inconvenient for respiration, but as they are generally mixed together they neutralize the obnoxious qualities of each other, and become salubrious to the constitution.

In mines, where the air has not an opportunity of circulating, it becomes charged with particular vapours or exhalations, which are often found fatal by dreadful experience: these are strangely diversified both in their appearance and effects.

Some resemble in fragrance or smell the pea blossom in bloom, and hence have their name; others shew their approach by lessening and at last putting out the flames of the candles, and thus give the workmen an opportunity of escaping; the fulminating damps strike down all before them, like a flash of gunpowder and a fourth kind, more deadly than all the rest, being by accident set free, rushing out from where they have been long confined in old mines, instantly stifles those they overtake.

In some mines the workmen breathe without any apparent prejudice to their health; yet if a lighted candle be introduced the whole cavern at once becomes one furnace of flame; by a very peculiar contrivance, a sufficient light for these gloomy operations is supplied with safety; this is by means of a great wheel, the circumference of which is beset with flints; this being turned, the flints strike against steels placed at the extremity, and thus a stream of transient sparks of fire is produced: In others, the workmen use only wooden instruments, and are cautious not to enter with nails in their shoes, as a single spark struck by collision, or in the manner of flint and steel, would set the whole mine in a blaze; yet here lighted candles may be used with convenience and safety.

The surface of the earth and its inhabitants, seem much affected by what is going on beneath in the mine; mineral exhalations, by their corrosive qualities, often destroy vegetation, and taint the air; from stagnant waters also, from luxuriant soils, from the sea itself when not sufficiently agitated, especially in hot climates, the air is often rendered unwholesome; but from diseased and putrid bodies of animals, the most subtle and noxious effluvia seems to arise; compared with these, other vapours seem gross and heavy; these fly every where, penetrate every where, and the vapours that fly from a single diseased person, soon render it epidemic. The plague is the first upon the list in this class of human calamities; it seems, however, during the last age, to have abated much of its violence, even in those countries where it is most common; but diseases, like empires, have their revolutions, and those, which for a while were the scourge of mankind, sink unheard of to give place to new ones more dreadful, as being less understood. As in the bowels

of the earth, there are a variety of operations continually carrying on, far remote from the observation of man, which notwithstanding affect the atmosphere he breathes, with their subtle exhalations; it has been thought, that these temporary disorders, with other calamities, which we can neither foresee nor prevent, may be forged in those secret laboratories, and have their duration, while the subterraneous process is going on.

10. *Earthquakes, Volcanos.*] In those darksome recesses, compared with which the excavations of art, are but as the cells of insects; the dreadful volcanos have their beginning, and the still more alarming and terrible earthquake; the volcano discharging, with a noise like that of thunder, torrents of flame and sulphur, and rivers of melted metal, throwing out clouds of smoke and ashes, with rocks of enormous size to many miles distance; its cataracts of liquid fire, rushing down the sides of the mountain, may bury plantations, villages, and even cities under the massy deluge; a province may be filled with conflagration, hundreds may perish, and thousands flee and find safety; but the terrors of an earthquake what tongue can describe! the convulsed region, to attempt to flee it would be in vain, the concussion spreads perhaps some thousands of miles, and none know the place where the earth may yawn, and swallow up the people together with their possessions; in these awful moments, the astonished inhabitants are also deprived of the means of flight, by the shaking of the earth, they are lifted up as upon waves, and cannot keep their feet; the hills are no certain protection, mountains fall in and vallies arise; cities are buried under ground, or overflowed by water; islands new and unexpected arise in the sea, and refuge is only to be found in resignation.

These wonderful effects, philosophers tell us, are all produced by the confined air in the subterranean regions endeavouring to get vent, the different inflammables, the sulphurs, and the bitumens mixing with the minerals, and other fossil substances, and being acted upon by air or water, they effervesce and take fire, and the air being thus expanded, its force becomes irresistible; thus, it seems, volcanos serve as funnels, and while they spread partial desolation, preserve whole kingdoms from destruction; sometimes, however, the explosion of the volcano and the earthquake come together.

One might think those a most insatuated people, who would take up their residence in the neighbourhood of a volcano; but in this world, a subsistence is not a matter of the least importance, and this they have copiously supplied from these fertile soils: indeed, it seems to have been the opinion of some, that at the centre of the earth is one prodigious fire; that we owe more to this elaboratory in producing vegetation, and keeping this earth from becoming one frozen ball, than even to the sun, whose rays are always transient and unfixed; to such it may be acknowledged, that it seems possible, that the earth may be hollow, without being in danger of falling in; as, from its spherical figure, attraction might make it one firm arch, and if once the imagination has formed it thus, it may appear as comfortable, to stock it with fire as any thing else; it appears hard, however, to imagine a fire, thus continually burning, in so confined a situation; and one would think, from the ruptures of earthquakes and volcanos, that
fire

fire under ground was actually a prisoner, contrary to the laws of creation.

Volcânos are to be met with in every quarter of the globe: Sicily and the south of Italy have been long famed for their burning mountains and dreadful earthquakes; in these, many a fine city has been swallowed up or overwhelmed.*

Within this hundred years, many dreadful eruptions and earthquakes have happened, in parts of the world we are acquainted with, as at Calabria, at Jamaica, Lisbon, and at Sicily, where in 1693, nineteen thousand of the inhabitants perished; the city of Catania was totally overthrown; and the shock felt in Germany, England, France, &c. to a circumference of two thousand five hundred leagues: there are few countries that do not seem to shew marks of these dreadful convulsions in nature, in their conical hills, and cleft and broken rocks; ancient as well as modern history furnishes dismal accounts of their devastations; and as volcanos are known to be in every quarter of the globe, and among the highest mountains, it seems not unlikely, but their ravages may be still more dreadful, among those extensive and numerous nations, who have not yet learned the art of recording their history.

11. *Height of the Air.*] The height of the atmosphere above the surface of the solid earth, is not certainly known. From the refraction of the rays of light from the celestial bodies, in passing to our world, it has been concluded, that it reaches but to a small distance in the intermundane space; when it is considered, however, that the air which we live in, is near a thousand times lighter than water, and that the body of air surrounding the globe, is equal in weight to an ocean of water, that would cover the world about thirty feet deep, it must necessarily seem to be some miles in height; but when its extreme elasticity is remembered, and how sensibly it grows lighter the higher we ascend, we may perhaps reasonably conclude, that it reaches several hundreds of miles from the earth's surface, and even suppose that it may be possible that the air, in its sublimer regions, divested of those gross vapours and exhalations which arise from the earth, may

* The ancients held, that Jupiter, when he had overcome the giants, heaped on them these mountains, and that the struggles of the monsters produced the eruptions. Later superstition seems to have gone farther; it has even called these the mouths of hell. In the records of one of the law courts in London, there stands a trial of a singular kind: a widow indicted the captain of a vessel, returned from the Mediterranean, for reporting, that he had seen her husband, who died some time before in London, passing away to his torture into one of these mountains, the very day of his death. Whatever wicked confederacy, or whatever uncommon delusion the ship's crew had been under, they unanimously supported in their evidence the captain's report, in all its circumstances of romantic horror: the court stood astonished, and liberated the mariner. It may seem almost superfluous here, to remark, that a native of Calabria, or Sicily, is of the same form as an Englishman; and that such a person passing freely through the smoke of *Ætna* or *Vesuvius*, with which he was familiar, to these superstitious sailors, that could dream of the presence of supernatural fires in the eruption of a volcano, he might appear to be any person that should strike their imagination. Perhaps a court of this day would have so ordered it towards the defendant, that the next time he went up the freights, if he concealed he saw any more of his neighbours, he would keep it to himself, rather than disturb the peace of families by such idle tales,

may be thus refined into æther, and fill the immensity of space that surrounds us*.

12. *Analysis of Air.*] To conclude on the subject of air, it appears reducible to four grand divisions or kinds.

1. Æther is perhaps a body perfectly elastic, and forms the basis of the atmosphere.

2. The atmosphere, or common vital air, seems a general mixture necessary to life.

3. The suffocating damps which extinguish fire, called mephitic, or fixed air.

4. The fire damp, or inflammable air.

The rays of light also, the emanations of the loadstone, and the effluvia of electricity, all seem to find place in the air.

13. *Meteors.*] Enough has been said on our compound atmosphere, to shew, that it may contain in itself ample materials for producing all the various phenomena of the meteors.

Dew is that vapour which the warmth of the day had exhaled from the earth; and which condensed into drops by the cold of the night, fall by their weight; and hoar is this vapour in a frozen state: clouds are mists or exhalations raised on the same principles, and collected in the air: rain is the cloud condensed into drops, falling by their weight. Hail is the drops, frozen in falling; and snow is the less compact cloud, frozen before it fell; parheli, or mock suns; parselenz, or mock moons; halos, or the coloured circles that surround them, and which, though always confined to our atmosphere, sometimes seem also to surround the real sun and moon, and the other heavenly bodies; the beautiful iris, or rainbow: these gaudy meteors are all produced by the rays of light that fall on clouds, mists, or rains, being reflected and refracted in passing to the eye. The aerial, or watery meteors, are often seen with delight; those of the fiery kind assume a more splendid, and even a terrifying aspect; it is not every one that is able to look coolly on them. The thunder and the lightning fill the philosopher with awe, while the fluctuating streamers, and the transient blazes of inflammable vapours, strike the superstitious with dread of future calamities. Lightning is found to be a flash, produced by the electrical fluid, rushing out of one cloud into another: and thunder, the sound of the rushing torrent, reverberated among the clouds. The fiery balls which are seen shooting through the atmosphere in the night, of various magnitudes and different forms, seem all to arise from inflammable vapours, taking fire from their fermenting or effervescing in the air.

SECTION

* It must be owned, it should seem more consistent with our ideas of the motions of the planets, to suppose the immensity of space, where they roll, rather a perfect vacuum than occupied, by ether or any other body that might impede their motions; however, some have been so far from supposing this subtil fluid an interruption, that they have even considered it as an active principle, in carrying on most of the works of creation, from the slow and steady courses of the inanimate spheres, to the volatile and voluntary motions of living creatures.

S E C T I O N V.

HYDROSTATICS, RIVERS, SEA.

If leaving the study of sounds and light, of magnetism and electricity, the regions of the atmosphere, and the appearances of the meteors, we take a view of the surface of the earth; land and water seem to make the first general and obvious divisions of the globe. In our speculations on these grosser bodies, we may flatter ourselves with an expectation of clearness and certainty; but even these seem equally evasive of human comprehension, and to pass away in the contemplation, like the most fleeting of the meteors. All bodies, say some chymists, originate in water, and are reducible to this fluid element: by heat, water is obviously dissipated into vapour; and cold stiffens it into the hardness of ice; but this seems only a small part of its varieties: according to them, water makes up the substance of all other bodies, only by putting on a different disguise; and the mountain is as much a body of water, as the cake of ice which melts on its brow; and even the philosopher himself, is composed of the same materials with the cloud or meteor which he contemplates.

1. *Water, Level, Experiments.*] Water, whether we view it as it diversifies, and gives coolness to the landscape, or observe it in vessels for domestic purposes, it always when undisturbed, presents a smooth and even surface; this seems its first and most striking appearance; and indeed when put in motion from any external cause, even its waves seem as so many efforts to recover its level, or to speak precisely its spherical surface, agreeing with the form of the earth, and immediately caused by the attraction of gravitation. On this property in water, depend the several laws in hydrostatics, e. g. if a ship, boat, or tub, or any other body, be placed in the water, it necessarily puts a part of the fluid out of its place; but the water, in its efforts to preserve its own level, shall suffer no more of itself to be displaced, than is equal to the weight of the body. If the body be wholly immersed, before it has displaced its own weight of the fluid, it is heavier than its own bulk of water, or specifically heavier, and consequently sinks. In lifting such a body, while in the water, it shall be as much lighter than it was in air, as the water it has displaced is heavier than the same bulk of air. Thus, in a hydrostatic balance, a good guinea loses less of its weight, on being immersed in water, than an adulterated one, which being less dense, and consequently taking up more room, necessarily displaces more of the fluid, and, consequently, loses more of its weight, on being tried in the water. If a body displace its own weight of the water, without being totally immersed, it is lighter than the fluid, and shall consequently swim; and a ship with its loading of the heaviest articles, or a vessel of heavy metal, as a silver cup, with its contained air, answering this latter description, shall

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on the same principles necessarily swim. A pipe of the form of the letter U, for instance, if water be poured in at one arm to a certain height, it shall rise to the same in the other; this may shew, how the city is supplied with water from the bason, and how it rises to rooms above stairs. If we reverse the pipe, already filled with water, and put one arm down into an empty hoghead, the other into a contiguous one full of water, this shall set a running through the pipe into the empty one, and continue thus discharging itself, till the fluid is on a level in both the vessels. This may shew the nature of the syphon: in this experiment, the water might rise about thirty feet in the pipe, if it were long enough, the weight of the atmosphere on the surface of the earth, being incapable of keeping it up higher; in the other, if practicable, the tube might sink to the center of the earth, may reach even to our antipodes.

The pressure of water against the sides of the cavity which contains it, whether tub or vessel, or a valley of the earth, is as the height of the surface of the fluid above the part, and not as the extent or quantity of the waters; hence even children, in their play, will sometimes with stones, weed, and sand, bank out the whole waters of the sea, till the tide, by a slow but steady rise, having gained the summit of their sandy little citadels, it at once overflows them; and hence, were it not for the motion and violence of the waves, a slight bank might sometimes prevent the waters of the sea from deluging a whole country, as that which confines a pond of the most trifling extent; hence, on the other hand, the addition of a single gallon, or any small quantity of water, applied in a particular manner, might be made to burst an hoghead, or to raise a prodigious weight, as effectually as many hundred gallons. Pl. III. Fig. 9.

If in the top of an hoghead, filled with water, there be inserted a pipe of small dimensions, but considerable height, and water be poured in at the top of the pipe to any certain height, the bottom and sides of the vessel shall be as forcibly pressed by this small addition of the fluid, as if the vessel had been continued, in its full dimensions, to the same height, and been filled with water. If a huge piece of timber lie in a ditch, just large enough to receive it, and water be poured in, the small quantity of the fluid, that the ditch can receive, shall as effectually float it, or bear it up, as all the waters of the largest lake.

If a tall and narrow vessel be filled with water, and pipes be inserted in its sides, at different heights, the force of the water spouting out at these pipes, shall be proportionably great, as it is distant from the surface of the fluid; and if similar pipes be inserted in the same manner, into the most extensive reservoir, the very same effects shall take place, without increased force, whether their pipes be horizontal, or bent to spout the water upwards and downwards.

The very curious property of water, pressing only according to its altitude, and the extent of the surface where the pressure falls, is also in the air, and the other gravitating fluids, though the effects may be more commonly observed in the water.

Fluids differ in their weights or densities; spirits are lighter than water; strong spirits than weak: to determine the force of the spirit, or the lightness of the fluid, the hydrometer has been contrived; it is
a hollow

a hollow ball, with a weight at one side to sink it, and a tube, marked with degrees, standing up on the other: now according to the strength of the spirit, so will the instrument sink, and so will the fluid wet or mark the degrees on the outside of the tube. Pl. III. Fig. 10.

2. *Solidity and Force of Water.*] Water, however soft and yielding it may generally appear, is found to be a very solid body; bullets fired obliquely on its surface, become flat, or are broken in pieces, as if fired against stones; and boards, on being thrown on it, sometimes are broken; and it is hardly sensibly compressible, into less room than it naturally occupies; hence this subtil fluid, on its being pressed forcibly in a hollow globe of gold, by means of a screw, has been found to ouze through the pores of this densest of all metals, and settle on its surface like a dew; till at length bursting a hole in the globe, it spun out with great vehemence. When stiffening into ice, it cleaves asunder, by its expansion, the massive rocks that confine it; and so vastly is it enlarged when raised into vapour, and so great is its spring or force in that state, that a drop of water, when heated into steam, will raise many tons weight.

3. *Supply of Rivers, Mineral Springs.*] How rivers receive their supplies of water, has been accounted for in different ways by philosophers; some have supposed, that, by subterraneous channels, water is supplied to their springs from the sea; that this by being filtered in its course, loses its saltiness; and that rivers derive but little of their waters from falls of rain, which are accidental and inconstant; this, however, seems contrary to what has been observed of the inclination of water to maintain its level.

Others have thought, that rivers receive their supplies mostly from the clouds; these vapours, say they, being carried by the wind against the mountains, are thereby condensed into drops on their summits; where, sinking into the earth, they descend in the mountain, till meeting with rocks, beds of clay, or other obstructions, they are stopped in their descent, and break out in springs at the sides or bottoms of the hills; a number of these rills meeting in the valley, form brooks and larger streams; and these, collected together, compose the largest rivers; and hence, the largest rivers have always their source among the highest mountains, whose cloud-capt tops never want their supply.

The water, in passing through different earths, and veins of fossils, often become impregnated with their particles; and thus are produced the different medicinal and poisonous springs. All these, with their various properties, together with rivers in general, falling into the sea, soon mix with that vast collection of waters, which lying in the deep and unfathomable vallies of the earth, by the order of attraction, is, with all its roarings, thus stayed within bounds, and prevented from deluging the land.

4. *Saltiness of the Sea.*] The saltiness of the sea, is a property in that element, which appears to have excited the curiosity of naturalists in all ages. The ancients supposed, that the sun continually raised dry saline exhalations from the earth, and deposited them on the sea; the present established opinion seems to be, that the sea's saltiness is supplied, not only from rocks or masses of salt at the bottom of the sea, but also from the salt which the rains and rivers, and other waters,

waters dissolve in their passage through many parts of the earth, and at length carry with them to the sea; that nothing but the fresh waters of the sea rise in vapours, and all the saltness remains behind; that hence the sea becomes every year more and more salt. A late philosopher has carried this idea so far, as to fancy, that by observing the encrease of its saltness during a certain time, the time of its acquiring all its saltness might be found out by the rule of proportion; and this, he imagined, would give us the age of the world: But are the supplies from rivers inexhaustible and always the same? Are the rocks or masses of salt at the bottom for ever dissolving, and yet unchangeably continue to give the same supply? May not the ocean, rather by its changing currents, at one time and place, tear up from their lowest depths, and dissolve large strata of salts, at another place or time, by the quiescence or other disposition of its waters, or of themselves, may not the dissolved bodies again concrete, chrySTALLIZE, or petrify, and settle to the bottom? Does not the rock salt, incrust-ed by the heat of the sun, evidently shew, that the sea does not for ever hold in a state of solution, those bodies that have been once dissolved in its waters? Indeed, when we consider what some chymists inform us, of waters being an universal dissolvent, to which all other bodies may be reduced, and of which all others are originally composed, there seems little reason to fear, that the ocean will at length become a pit of salt; which we might reasonably fear, if some of the preceding conjectures were just; and-as little cause to apprehend, as some have done, from the petrification of soft substances, that the whole earth shall at length become one solid stone. In fact, whenever we turn our eyes on the works of the creation, all seem continually in a state of change or circulation. "The sun," saith Solomon, "arise, and the sun goeth down, and pants for the place from whence he arose; all rivers run into the sea, yet the sea is not full; unto the place from whence the rivers came, thither they return again."

The saltness of the sea renders it more heavy and buoyant; a greater advantage to the mariner, seems, that he is less liable to take cold, on being wet, than if it had been fresh; by its saltness, the sea is kept longer from freezing; and perhaps its saltness helps to preserve it from becoming one putrid lake; yet salt as it is, in hot climates, after a long calm, it is found to become very putrescent; and indeed it seems to owe not less of its sweetness to its continual motion, than it does to its salt.

5. *Motion. Tides.*] The waves of the sea seem generally produced by the winds agitating its surface; there is another more general and invariable motion, the cause of which appears not so obvious; after some wild conjectures of the earliest philosophers, it became well known in the times of Pliny, that the tides were entirely under the influence, in a small degree, of the sun; but in a much greater, of the moon; but how these heavenly bodies produced these effects, was to them incomprehensible; the moderns, however, have concluded, it is by the force of attraction and the centrifugal force. It is observed of the ocean, that the part of its surface, which is opposite to the moon, is by the attraction of this planet considerably raised; and that this swell continually follows the moon from east to west; or rather its place is turned

turned away, while the swell itself remains stationary under the moon. It is observed also, that on the side of the globe opposite to this swell, there also the waters rise; and the parts of the sea, lying between these swells or risings of the waters necessarily fall; these swells in the ocean produce the flowings of the tide, and the full sea or high water, and its intervening falls produce the ebbs or low water, in channels or harbours remote from the ocean; hence it may be seen, why we regularly have two tides in the course of one lunar day: the tide takes up some time, in flowing to and receding from remote channels and harbours; hence the tides happen later in these, than in the ocean; in some places where the shores are directly opposed to the influx of the waters, they rise to a great height; where the entrance is narrow and the sea large, as in the Mediterranean and Baltic, there is scarcely any sensible tide; the water rushing in and out at the streights, being incapable of elevating or depressing so vast a body as the inclosed sea in so short a time. Besides the tides caused by the moon, the sun is also found to produce a sort of tides, though from its immense distance from our globe, they are so small as hardly to be noticed, and are only observed as they affect the lunar ones: when the solar and lunar tides or swellings happen together, which they do at the change of the moon, and at the full, they produce the spring tides; when the solar tide or swell falls on the lunar ebb, and its ebb or depression on the lunar swell or tide, which always takes place at the time of the half moon, from their counteracting each other, we have only neap tides.

6. *Winds.*] It would be far beyond the design of this work, to attempt a detail of the many wonders of the deep; it would perhaps be a defect, however, to leave this element without taking some notice of its currents, its eddies, and its spouts; and also of the winds, which, though their consideration belongs properly to the study of pneumatics, yet as they were most steady and constant on the ocean, and peculiarly interesting to the mariner, philosophers have principally built their theories on the observations, that this hardy race of men have made upon this fluid element; and the analogy between the winds and the currents of the sea, seem sufficiently close, to consider them together. It has been observed, that the general motion of the tides, on the ocean, is from east to west; this is found to produce one great and general current of the waters, in the same direction, as the mariner often experiences on the extensive main; but more especially in the streights, which connect large parts of the ocean together; where a large quantity of water, having to pass through a narrow place, it rushes with great rapidity. Currents are found in different parts, to run in all directions, east, west, north, and south; but these generally seem all but deviations from the general current; and chiefly caused by jutting promontories, inequalities at the bottom, intervening islands, opposing shores, &c. In like manner, on the extensive ocean, at and near the line, there is found to be a similar current of the air, a general wind, continually blowing from east to west; from the poles also, the air is found to continually rush towards the equator, which general currents are thus accounted for; the heat of the sun rarifies the air immediately under it, in the tropical regions; in one diurnal revolution of the globe, this

this rarefaction will evidently have obtained round the whole torrid zone, from east to west; the rarified air ascending by its lightness, the denser air rushing in, to restore the equilibrium, it seems obviously clear, how these currents are produced, and all other gales and breezes, in different parts of the world, are accounted only accidental deviations from these general currents; these currents of the atmosphere, namely, the general one from east to west, and the more particular ones from both the poles, may serve to account for all the phenomena of trade winds; which, if the whole surface of the globe were sea, would undoubtedly be constant, and for ever continue to blow in one direction; but there are a thousand circumstances to break these air currents into smaller ones, to drive them back against their general course, to raise or depress them, to hurl them in storms, or whirl them into eddies.

That heat necessarily produces wind, may obviously appear, from the current of air that is always found pressing to the culinary fire: hence, exhalations and showers, volcanos and earthquakes, hot sandy deserts, and bleak mountain tops, and perhaps more than all others, the presence, absence, or the partial distribution of the electrical fluid, tends to alter the temperature of the air: they consequently all contribute to produce the fluctuating winds, while the inequalities of the earth's surface, and even the motion of the sea, all influence or vary their directions; but the air is supposed also, from the same attraction, to have its regular tides, as well as the sea, though invisible to us; hence, in spring and autumn, or at the time of the equinoxes, when the sun and moon being both on the equator together, their attractions are most powerfully combined together, to produce high tides in the sea; at that time also, the highest winds are found to prevail. In our climate, the winds are uncertain and changeable to a proverb; in many parts of the world, they pay their stated visits; in some places, they blow one way by day, and another by night; in others, for one half the year, they go in a direction contrary to their former course, and in some places, as was already observed, the winds never change.

7. *Whirlpools, Waterspouts.*] Most people have observed, in the stream or river, when the current has been interrupted by bridge, stone, or some such thing, an eddy or whirlpool has been formed in the water, just below the obstacle; on a much larger scale, these effects take place in the currents of the sea, the whirlpool Charybdis, and the rock Scylla which produces it, in the streights of Messina, were terrors to the puny mariners of antiquity; and their poets have not failed in describing these dangers, to add the romantic horrors of of supernatural influence; they have feigned, in these dreaded places, monsters who had been metamorphosed by magic spells, or by the will of Jupiter; and the noise of the waves, were in their extravagant fictions, the barking of dogs, and the howlings of wolves. Modern navigation, however, seems superior to any little eddies that may be found in the Mediterranean; yet, in the ocean there are whirlpools, that mock the arts and improvements of man; that called the Maelstrom, or Navel of the sea, on the coast of Norway, produced by the ebbing of the tide, is considered as the most dreadful and voracious in all the world; whatever falls within the circle of its violence, whether

ther timber, trees or shipping, is swept around by the force of the waters, brought nearer and nearer to the center of its dreadful vortex, and at length swallowed up; no skill in the mariner, or strength of rowing, can work an escape; even whales themselves fall victims to its superior force, while they roar with terror, and in vain attempt to get free from its certain destruction; what has thus been sucked in by the ebb, is vomited forth with equal violence, on the coming or flowing of the tide: in like manner, eddies or whirlpools are produced in the air, by its contrary currents, these easily whisk up light bodies, as dust, hay or straw; in the deserts of Africa, and Arabia, they sometimes whirl up a body of sand, and bury alive whole caravans of travellers; upon land they also seem to roll together the clouds, and condense them one upon another, darting down a typhon or spout, even tearing up trees, and pouring down a sudden inundation of waters; at sea, it is perhaps these whirlwinds alone, that produce the waterspout, so dreadful to mariners, and so astonishing to the observers of nature: this curious phenomenon, is common in the tropical seas, and sometimes it is seen in our own; in the spot whence it ascends, the water is observed to be agitated, and to rise above its level, with a froth or mist about it; the mist is then whirled about with amazing rapidity, and ascends to the clouds in a column or canal, as thick as a man's finger, his arm, or sometimes his whole body; when it has reached the cloud which hangs over it, it spreads out like the mouth of a trumpet, and mixes with it, or perhaps, it sometimes in this way, altogether produces the cloud of itself: the canal, or spout in its ascent, sometimes rises perpendicularly, at others obliquely, sometimes it is bent, sometimes it is broken, and will join together again; if the cloud be carried along, the canal follows it; all which seems to shew, that it is entirely under the influence of the whirlwind, and produced by it alone; they are sometimes observed in calm weather, but we know not how the winds may be raging in the upper regions of the air: whirlwinds are quite local tempests, and sometimes their force is confined to a very little space; these waterspouts last for several minutes, the canal then lessens by degrees till it vanishes, and the sea about it resumes its level; if one of these falls upon a vessel, its waters are sufficient to break down its rigging, or sink it in the deep; it is said, however, that ships of any force usually fire their guns at them, loaden with a bar of iron; and if so happy as to strike them, the water is instantly seen to fall from them, with a dreadful noise, though without any further mischief.

SECTION

S E C T I O N VI.

FOSSILES.

If leaving the water, and setting our feet on firm ground, we cast our eyes around us on the landscape, many are the wonders that present themselves to view; all living animals, the vegetable productions of the earth, its unequal surface.

1. *Layers.*] Those who observe the broken banks of rivers, or steepy sea shores, or carrying their speculations still farther, examine the disposition of the earth, as it appears in quarrying or digging of mines: they find it generally lying in horizontal layers, or strata of different kinds, like the settlements of waters. The first layer that presents itself, is most commonly the bed of vegetable earth or mold, which generally covers the surface of our globe, and ultimately is the support of all its inhabitants; for from this vegetables derive their growth and nourishment; upon these live the animals, and upon one another. As this affords to animals and vegetables their support, so the spoils of these, when dead or decayed, return to the dust of the ground, from whence they were formed, and thus keep up an unceasing circulation. The most common disposition of the layers, is, that under the first earth is found gravel, or sand; then clay, or marle; then chalk, or coal, marbles, ores, &c. This disposition, however, is far from being uniformly continued all over the globe; in different soils, the order of these layers vary.

2. *Fissures.*] And they are ever at small intervals cracked through as it were by perpendicular fissures; the earth resembling, in this respect, the muddy bottom of a pond, from whence the water has been dried off by the sun, and thus gaping in several chinks, which descend perpendicular to its surface. These fissures, which are to be found in almost every quarry and every field, are many times found empty, but oftener closed up with adventitious substances, that the rain, or some other accidental causes, have conveyed to fill their cavities; there are some not above half an inch wide, some a foot, some many yards. In some places they form unfathomable caverns; and among lofty mountains, tremendous chasms. It is remarkable, in digging deep in the earth, there is generally found an alternation of layers; first, the soil or mold; then the heavier strata; then soil, mold, or turf; again the heavier layers; afterwards earth, &c. as far as human observation has yet penetrated.

3. *Petrifications.*] It is wonderful, that in the different parts of the globe, on the tops of mountains, as well as in the vallies, at very great depths; and even in the hearts of solid rocks, or marble, trees are found; and shells, which are less liable to decay, are discovered in astonishing abundance; parts of animals also, corals, and a variety of petrifications; all which appear as the wreck of the general flood,

or

or the ruins of more partial or local devastations, as earthquakes, inundations, &c. These various bodies, from their being found by digging in the earth, are called fossil substances. Fossils appear to form the most simple productions in the oeconomy of the creation.

4. *Analysis of Fossils.*] Naturalists consider their varieties under four general divisions; and each affords substances for medicinal as well as other purposes.

I. *Earths and stones in general*, are, 1st. Mold, the support of vegetables; 2d. Clays, which mixed with water, harden in the fire into bricks, delph, china, &c. 3d. Calcareous substances, as chalks, marles, limestones, marbles, convertible by heat into quicklime, and gyps into alabaster. 4th. Talcs, which are found in flat, smooth laminæ, or plates. Of talcs, asbestos is the most flexible, and may be woven with the addition of hemp or lint, into cloth capable of enduring violent heat; the lint is indeed consumed, but the asbestos remains. Formerly dead bodies were wrapped in this kind of cloth, when they were thrown upon funeral piles, to prevent the ashes of the deceased from mixing with the common ashes. 5th. Slates also split into laminæ or plates; these, with a variety of stones from the porous freestone, or sand, to granite, porphery, flint, and the still harder, the precious stones, are of various properties, and are accordingly applied to different purposes. Some, besides their being applied with other stones in building, are used as whet-stones; some strike fire with steel; others are polished to glitter in the dress or furniture of the gaudy; and melted by fire, they form the transparent glass.

II. *Salts* are, 1st. Alkaline; these turn the syrup of violets of a green colour. 2d. Acid; these turn the syrup red. The acids and alkalies effervesce with each other.

III. *Inflammables*, are, 1st. Sulphur. 2d. Bitumens.

IV. *Metals* are, 1st. Malleable metals. 2d. Brittle semi-metals.

5. *Production of Fossils.*] Fossils have been thought to grow organically, from proper seeds, like plants or vegetables; the observations and experiments, however, of chymists, seem to shew, that there is no circulation of humours through vessels in the mineral oeconomy; that they owe their existence entirely to a fit apposition of the particles which compose them, and to proper degrees of heat, cold, or moisture, to carry on the subterranean process, and produce their varieties of chrySTALLIZATIONS, petrifications, and mineralizations; whether we find them disposed in loose independent masses, in horizontal strata, in angular columns or basaltcs, or in the disportive like ramifications or shootings, which they sometimes assume; hence we find under ground, those bodies that have once held a higher place in the creation, as animals and vegetables, have put off the delicacy of their former constitutions, and become real stone, while they have still preserved their original forms: hence fossils are compounded with each other, through varieties so innumerable, that human diligence seems incapable of analysing or recording them; hence many of the compounds are produced in chymistry, and many more that are not to be met with in the earth; hence some of these substances are diffused through

through the whole creation ; animals and plants, the air and waters, are all found to contain, or be composed of earths, salts, inflammables, &c.

S E C T I O N VII.

P L A N T S.

1. *Constitution.*] Plants seem under a much nicer order and more delicate oeconomy ; these as well as animals, are found to be organized bodies ; like them they droop under inclemencies and disorders ; and like them, they look well when in health, and well fed ; like them, they are tender and feeble in the beginning, and they gradually arise into vigour and beauty ; like them, are liable to a variety of disorders ; need the knife, the plaiter, and the proper kind of nourishment ; and like them, in age, they totter and fall to their original dust.

2. *Production.*] Some have strained the similitude so far, as to say, that plants are of different sexes ; that they consummate their nuptials with each other : and in support of the sexual system which they seem to have strangely imagined, they appear to have tortured the beautiful symetry of flowers, into a thousand absurd and indelicate extravagancies. It is beyond the present design, to enumerate the arguments that have been advanced for and against such a system ; a system which so generally obtains in the universities throughout Europe. It is perhaps worthy of remark, however, that those plants which they have denominated male and female, are found separately to grow and flourish in beds that are distant miles from each other : and while some of these can suppose the winds sufficiently steady and exact, to just wait the seeds from this bed, and exactly deposit them with minute nicety in the cups of the flowers in the distant one ; or calling in the assistance of flies, can imagine that the seeds stick to their little legs, while they taste the sweets of these flowers, and drop off when they renew their repast at the other, after such a supposed tedious flight ; or falling by the way, produce with other plants, a set of vegetable mules, hybrids, or monsters ; for such productions they conceit they have discovered. While they thus imagine, respecting the propagation of vegetables, we may perhaps with others more comfortably conclude, that however it be carried on, these necessities to animal support, are rested on laws more established and regular, than any thing we can discover in the fluctuation of the winds, or in the wayward and disportive roving of flies ; besides, these ever busy creatures, dressing or rubbing up their little bodies, wings and limbs, are perhaps unwilling to carry any burthen, but what they intend for their own little purposes.

3. *Growth.*] The vegetation and oeconomy of plants, is a subject which has engaged much of the attention of naturalists ; and a view of the order and beauty which they discover, did no other advantage

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accrue from their researches, might seem an ample reward for their labours.

The seeds of plants are of various figures and sizes. Most of them are divided into two lobes, though some have more; and others appear undivided and intire; but their essential properties, when considered with regard to the principles of vegetation, are all the same.

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The great garden bean is a seed whose parts are remarkably conspicuous: * it is covered with two coats or membranes; within these, the body of the seed, divided into two portions or lobes, is externally smooth, from its being covered with a thin film or cuticle; its substance is not a mere concremented juice, but is curiously organized, and consists of a vast number of small bladders, filled with parenchyma, or pulp; and in the heart of this lies the embryo plant. At the thick end of the bean, there is a small hole visible to the naked eye, immediately over the radicle, or future root, that it may have a free passage into the soil. 1st. The plume, bud, or germ, and the radicle, are in colour and consistence much alike, or, in other words, they are the different extremities of the same body; till time unfolding their parts, the radicle descends down, and takes root in the earth, the bud arises into all the beautiful variety of stem, branches, leaves, flowers, fruit, &c. 2d. Within the radicle, there is contained a substance called the feminal root, which divides into three branches; the middle one runs directly up to the plume, the other two pass into the lobes, on each side, and send forth smaller branches through the body, till their ramifications become quite minute on the surface of the lobes. When the seed is sown, and the moisture of the earth, absorbed by the outer coats, finds its way into the pulp or inner part of the lobes;

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* Pl. III. Fig. 11. A. The foramen or hole in the bean through which the radicle shoots into the soil.

12. A transverse section of the bean: the dots being the branches of the feminal root.

13. A. The Radicle. B. The plume or bud.

14. Longitudinal section of one of the lobes of the bean, showing the small bladders of which the pulpy or parenchymatous part is composed.

15, 16. A, A transverse section of the radicle. B, A transverse section of the plume, shewing the organs or vessels of the feminal root.

17. Seminal root branched out upon the lobes. 18. Appearance of the radicle, plume and feminal root when a little further advanced in growth.

19. A small part of the transverse section of the pulpy part of a pear magnified, shewing A the acetary or inner parenchyma which joins to the core. B, The outer parenchyma, formed of globules or grains, lignous fibres and radiated vessels. C, Ring of sap, vessels and skin.

20. A transverse section of the root of wormwood, as it appears to the naked eye.

21. Section of 20 magnified. A A The skin with its vessels. B B The bark; the round holes. C C C, Are the lymph ducts of the bark: all the other holes are little cells and sap vessels. D D D Parenchymatous insertions from the bark, with the cells &c. E E E, The rays of wood, in which the holes are the air vessels. N. B. This root has no pith.

22. A transverse section of a branch of ash, as it appears to the eye.

23. Section of 22 magnified. A A, the bark. B B, Arched rings of sap vessels. C C, The parenchyma of the bark with its cells. D D, A circular line of lymph ducts. E E, The wood. F, First year's growth. G, Second. H, Third year's growth. I I I, The true wood. K L, Air vessels. M M M, The parenchymatous insertions of the bark represented by the white rays. N O, The pith with its bladders or cells.

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the minute branches of the seminal root take up the moisture, and convey it into the main trunk, the sap thus supplied runs in two opposite directions; part of it ascends into the plume, and promotes the growth and expansion of that organ; and part of it descends into the radicle for nourishing it, and evolving its various filaments; when the radicle begins to take root in the earth, and to absorb some moisture, not however, in a sufficient quantity to supply the exigencies of the plume, the two lobes rise along with the plume, assume the appearance of two leaves, defend the young plume from the injuries of the weather, and at the same time, by absorbing dew, air, &c. assist the tender radicle in nourishing the plume, with which they still have a connection, by means of the seminal root above described. But when the radicle or second root has descended deep enough into the earth, and absorbs of itself sufficient nourishment for the plume; these seminal leaves, which differ in shape from the other, begin to decay and fall off. And in this way is every plant growing from seed, possessed at first of two roots, both of which are contained in the seed, undergo the changes, and answer the purposes already mentioned. Plants, beside their growing from seeds, are raised; some from any part of the root set in the ground; others by new roots that are propagated from the old ones, as in tulips; others by offsets; in others the branches set in the ground, will take root and grow; and last of all, grafting and inoculation, in certain sorts, are known ways of propagation.

4. *Botanist.*] Voluminous are the works which have been wrote in different ages and countries, on the science of botany; and the classes and orders, the genera and species to which they have reduced the variety of plants, seem numerous and perplexing. However, our botanist in his chair, having flowers presented him brought from America or Japan—when we consider, that by the help of his systematic divisions, he can inform the poor mariner (whose allowance may be sometime short, or who may be cast on a desert island, or uninhabited coast) that the plant which bears this flower, its seed will make him good bread, or that its leaves or its fruits he may freely make use of as wholesome; on the other hand, that the plant on which that flower makes its appearance, its berries, however inviting they seem, he must be sure to avoid, as they are certainly poisonous; when we consider that he can direct us, during a scarcity of corn, to plants growing wild in the field, that afford good nourishment, and are highly grateful, which through ignorance we should otherwise trample under our feet: It must appear that his researches are not fruitless and vain. It must serve the present purpose, however, which is only intended as a general view of things, to consider plants under three large general divisions.

Plants may be divided into herbs, shrubs and trees: herbs are those plants whose stalks are soft, as grass, sow-thistle, or hemlock; shrubs and trees are of a firmer texture; the difference between these latter is, that shrubs grow not to the height of trees, and usually spread into branches near the surface of the earth; whereas trees generally shoot out in one great stem or body, and then, at a good distance from the earth, spread into branches; thus, gooseberries and currants are shrubs, oaks and cherries are trees.

5. *Substance of Plants.*] Whatever part of a plant we examine, we shall find its whole substance to be a congeries of tubes, vessels and fibres, with their contained pulp or fluids; the root, the trunk or stalk, the branches, and even the leaves, flowers and fruits, all answer this description. The roots, trunks and branches of trees, each generally comprehend three different parts, the pith or core at the centre, next to this the wood, and surrounding these the bark; the bark is also covered with a skin; the pith and the bark are similar substances, the parenchyma or pulp of these, seems to be composed of small cells or bladders, and through the woody part of the plant, especially in the root, the bark is inserted like rays towards the center; through the root the trunk and branches there run several tubes, through some of these the sap rises, some contain air, and some afford gums, balsams or resins. The true wood is a congeries of these tubes dried. Between the bark and the wood, a new ring of these ducts is formed every year, which gradually loses its softness as the cold season approaches, and, towards the middle of winter, is condensed into a solid ring of wood. These annual rings, which are distinctly visible in most trees when cut through, serve as natural marks to distinguish their age. The rings of one year are sometimes larger, sometimes less than those of another, probably owing to the favourableness or unfavourableness of the season. The leaves, flowers and fruit of trees, are organized like the trunks, and composed of the same substance, differently modified or farther refined. Philosophers are greatly divided about what they call the circulation of the sap. Some have thought, that it returns to the root betwixt the bark and wood, and others that the superfluous parts of the sap are carried off by transpiration. Every part of a plant transpires; but the greatest quantity goes off by the leaves.

S E C T I O N . VIII.

ANIMALS.

1. *Comparison between animals and plants.*] We are now come to consider the last, the noblest and the most beautiful part of the creation: the creatures for whom this earth seems to have been entirely formed, and for whose repast or use, the whole of its unintelligent productions appear to have been brought forth: these are the animated tenants of our globe. All animals appear to be endowed with a degree of understanding or perception, and choice or will. This more than their formation appears to distinguish them from the insensible vegetables whereon they feed. Though there appears at first view, this most evident distinction between an animal and a plant; yet some of these very different kinds of creatures, assume an appearance so exactly like each other, that philosophers in considering them, seem at a loss to determine, where animal life begins, or vegetative ends. The sensitive plant shrinks at the touch; but this perhaps mechanically proceeds from the interruption of the fluids in its tender vessels:

Some plants seem possess of voluntary motion, presenting their flowers to the rays of the light, and pursuing the sun from east to west, rejoicing in his beams; but this is also mechanically accounted for. It is well known, that a certain degree of heat relaxes the tone of the vegetable organs, and at the same time proportionably evaporates the fluids which these organs contain. Now, to whatever side of the plant the heat is principally applied, there of necessity must also be the greatest flaccidity of the fibres, and the greatest evaporation of the fluids; of course, from the law of gravitation, the flower, indeed the whole plant, must incline to that side from whence the light or heat proceeds. Vegetables also are fixed to one spot, and must wait for accidental supplies of nourishment. Their roots are fitted to absorb every fluid that comes within their reach: they have been found by experiment to imbibe fluids that actually poison them. The case appears to be very different with animals: they have a choice in their food, and if one place does not supply it, they seek it in another, and take what is best suited to their constitutions; they seek preservation from superior force and violence in flight, art or mutual combination: even the lowest tribes of animals, which from their simple formation have been called zoophytes, a name implying a vegetable substance, endowed with animal life; these are found to skulk or fly on the appearance of even distant danger: thus the polypus contracts its horns, and the star fish its arms; the earth worm contracts itself and hides in the earth when disturbed: shell fishes and insects also of the most inert kind, are furnished with means of defence which they avail themselves of with diligence: insects make their way into plants and other bodies, and there lie secure; the Pholades fishes, merely by working with their tongues, dig themselves apartments in solid rocks, and even the dull oyster can open or close up its shells.

2. *Constitution.*] It is a received opinion among naturalists, that an animal body is a compages or complicate system of vessels (perhaps we may add, with their contained circulating fluids)* variously disposed, to form parts of different figures for different uses. The ancients supposed that the heart and brain were first formed, and that the other parts proceeded from them; the moderns, by help of glasses, have discovered the figure of the animal at a very early period of its existence; and some have thought, that all the parts exist in miniature, from the first formation of the foetus; but the wonderful operations in the natural world, when attempted to be traced to their source, become so extremely delicate and minute, as to escape the nicest observations of man, assisted with the most ingenious contrivances of art.

3. *Production.*] Animals, with regard to their manner of generation, are divided into oviparous, bringing forth eggs; and viviparous, bring forth their young alive; the oviparous are extremely prolific; the spawn of fishes, the eggs of birds, of serpents, and of insects are almost innumerable; those of the insect tribes appear to be every where scattered abroad, and by the heat of the sun, of putrifying

* If it be said on the one hand, that many of the fluids are excrementitious, and form no part of the animal; may it not be alledged on the contrary, that others are absolutely necessary to its existence, and from some it derives its immediate animation and motion.

ing bodies; and by various other causes, to break forth into animation in places so unexpected, that some will needs have recourse to a supposed new creation, to account for their sudden appearance. These minute animals, make their appearance as reptiles, or as small fishes, and move about for a time; they are shut up in a narrow cell, closely surrounding their bodies, and under the names of aurelia, &c. seem tombed for a season; they burst their narrow mansions, take wing, and are for ever busy during the very short period of their enlarged existence. The embryo of the viviparous kind, naturalists tell us, is also an egg impregnated like the other; it appears, however, to be of a more delicate constitution, and only capable of being matured in the body of the animal.

4. *Nutriments.*] The human body is accounted the most exquisite in its formation, and the nearer the other animals approach to this, the higher degree of sagacity they seem generally endowed with.

Anatomists tell us, that the food which we take, being chewed and mixed with the saliva, and thereby rendered fit for digestion, descends into the stomach; where being still further thinned by the juices there, and undergoing a gentle warmth and attrition, it is digested and thrown into the guts, by the peristaltic or wormlike motion, of which, and the compression of surrounding muscles it is carried along: being now mixed with bile from the gall-bladder and liver, and the juice of the pancreas or sweat bread, the gross parts are protruded through the bowels; the nutritive, or thin and milky chyle, is absorbed by the lacteals (small tubes spread on the guts) through which it passes to the receptaculum chyli, and thence through the thoracic duct, and left subclavian vein, mixing with the blood, &c. enters the heart.

5. *Circulation.*] And now, having got to this living and powerful spring of action, which waits not to be renewed by the application of winches, or the winding up of wheels; but whether we sleep or are awake, by night and by day, like an unwearied and faithful labourer, with muscular exertions, continually distributes the vital stream through our complicated frame, till their varied functions cease, and the tenement of clay is inhabited no more. Having got to the heart in surveying the animal oeconomy, we might hence take our departure, and following the blood in its circulation through the body, we might explore the inmost recesses of this wonderful piece of mechanism; we might see it, when all was in health and in vigour, every part ready to spring into action, or all at ease; we might observe the thousand changes it is incident to; enervated by labour, or enfeebled by age; racked by pain, and disordered by every kind of excess; we might observe it agitated by the passions, oppressed with grief, and finding relief in a sigh or in tears; invigorated with hope; convulsed with laughter, tremulous with joy, with fear or with anger, and with the excess of any of these, brought to its end. We might mix with the features, see them growing into expression, observe paleness or a blush betraying the secret emotions of the soul; the eye and the ear we might minutely examine; see how they convey information to the mind, amuse it with various objects of beauty, or captivate it with the bewitching melody of sounds; we might notice the disorder in its most exquisite parts, when from intemperate application, and various other

other inexplicable causes, reason goes astray, and the patient is insane; but man is beyond the comprehension of himself: the philosopher may enquire, and the physician draw his conclusion; their theories may be specious and oftentimes just, but it seems they must be short; and the more they enter into this extensive field of enquiry, the more they will ever see before them for examination and for conjecture.

The heart, as described by anatomists, is a muscle of conic figure, furnished with its cavities, valves and tubes, as an hydrostatic machine; we may conceive some idea of its motions, by observing the mechanism and effects of a pump, or a common pair of bellows; from the veins the blood enters the cavities or ventricles of the heart, through openings called auricles; the ventricles contracting, the blood is thrown through the arteries all over the body. And this circulation may be defined to be a perpetual motion of the blood, in consequence of the action of the heart and arteries, which impel it through all parts of the body, from whence it is brought back by the veins. The arteries, at their first branching out from the heart, are large hollow tubes called aortæ; the veins, at their entering the heart, are also large hollow tubes called venæ cavæ. From the minute branches or extremities of the arteries distributed through the body, arise the veins, and the transparent lymphatics; the veins to receive the blood and return it to the heart; the lymphatics to carry off the lymph or thinner part of the blood, to keep it in a right temper for flowing through the veins and to distribute the lymph to the chyle in its passage to the heart, for the purpose of diluting and preparing it to incorporate with the blood.

Although the chyle keep perpetually flowing into the blood, yet no redundancy ensues, as the different glands are continually secreting the other fluids of the body from the general mass, as, the saliva, bile, &c. Of these the sweat is not the smallest discharge we experience; the effluvia continually thrown off by the respiration of the lungs, we are told, far exceeds it, but is in fact, the same evacuation through different channels: hence, those who perspire the most in summer, their pores being closed by cold in the winter, the discharge is thrown upon the lungs, and they become peculiarly liable to asthmatic complaints, especially if the atmosphere be already too humid to receive the discharge. Some anatomists seem unwilling to assume a perfect knowledge of the use of the air inspired by the lungs; it is known to be instrumental in speech, and to convey smells. When the left ventricle has thrown the blood to the remote parts of the body, and it has found the way back again to the right auricle of the heart; the right ventricle receives it, and throws it through the pulmonary artery, reeking into the lungs; here the air seems as a vehicle to carry off the noxious steam; and from the phlogiston or principle of fire it may be fraught with, it perhaps refreshes and helps to renew the vivifying quality of the crimson stream; before, returning by the pulmonary veins through the left auricle of the heart, the left ventricle sends it on the same kindly errand it has already run through the body.

6. *Wall, Brain, Nerves.*] Hitherto we have considered the animal functions, as they seem passively carried on, and it is thought that vegetation is produced in similar ways or operations; it is found, the plant has its circulating fluids, and cannot live without air. But
animals

animals have also voluntary motion, and among these man is most eminently distinguished: in surveying him in this point of view, new wonders arise, and still more incomprehensible; we may have a remote idea of the circulation of the fluids in a uniform way; we may observe the swelling of the tide, the courses of the heavenly bodies, the growing of plants, the motion of the winds, and other inanimate bodies; we may say it is all natural, and conceit we comprehend it; and indeed, even here the philosopher may lay aside his enquiries, and share with us our wisdom, without much degrading himself. But when we come to contemplate voluntary action, the sage and the child seem at once on a level; alike unable to comprehend the powers they enjoy, and alike capable of employing them to their likings; the child may sound his rattle, and rejoice in its noise; the philosopher try his experiments, and build up his theory with equal delight, and each presently tire of his toy: they sit down to their visuals, this one knows he has to bend his arm, grasp his spoon, and open his mouth; the other may speculate on the necessary *contractiones flexorum digitorum, et cubiti, &c.* he may have an idea of the complicate disposition of the muscles about the jaw (with their long hard names) for receiving the morsel; he may think of the nervous fluid or animal spirits, being necessary for producing these actions, and he will be as near comprehending the matter, as his little fellow partaker of the banquet; however, our disordered frame may often derive relief from his knife, and ease from his prescription, and society will do well to encourage his useful labours, and to restrain the hardy and unthinking empiric, who, without knowing any thing of the frame, attempts to repair it, who brings scandal on the profession, and loads with irreparable infirmity, the victim to credulity.

Anatomists, in describing the body as an animated machine, inform us, that from the brain, which they imagine to be the seat of the understanding, arise certain branches, which they suppose to be fasciculi, or bundles of extremely fine tubes, so minute indeed, that their cavities cannot be discovered; these they call nerves; they tell us, that they are the instruments of sensation, and distributed throughout the whole frame, that whatever we feel is only experienced by these conveying the sensations to the brain; but, how this is done, is matter of dispute: some suppose, that however objects affect us, whether they come in contact with the hand or any other part of the body, whether their rays fall upon the retina of the eye, which is an expansion of the optic nerves, or their effluvia enter the nose, and strike on the olfactory ones, whether sounds be in the ear or tastes in the mouth, the nerves receive the impression and vibrate it to the brain. Others object that they are slack, moist, and surrounded with soft parts, and are therefore unfit for vibrations; according to their conjectures, the brain is a gland secreting from the blood an invisibly fine fluid, called the animal spirits or nervous fluid; this flows continually through the nerves, and is transmitted into all the parts of the frame. To all these processes in our nice elaboratory, the infant owes its growth, and the man of years his continuance; were our hands of steel, or our bones of adamant, they would soon be worn out, but fitted to receive the nutrimental fluids, they mock the violence of labour, and only gather strength from the duties imposed on them; by these the fingers are guarded

guarded with nails, and by these the jaws are furnished with teeth. The fluid which flows with an equable motion through the nerves, is affected in its motions by every object that strikes upon these; and, as to stop the end of a tube, is to stop the motion of the whole contained fluid, so the extremity of the nerve being affected, the animal spirits stop at once, and faithfully give to the brain or sensorium, the varied impressions of pleasure and pain. It is when the mind willeth, that these animal spirits rushing into the muscles, contract them, and thus put the body into action: but here the man of science must hold, and here his conjectures seem to have an end.

7. *Definitions, Observations.*] The bones sustain the other parts of the body, they serve as levers for the muscles to act upon, and defend those parts from external injuries, that are of the greatest consequence to be preserved, as the brain, spinal marrow, heart, &c. Every cylindrical bone contains a marrow, for the purpose of softening it and rendering it less brittle; in young tender bones, the marrow is bloody, lest being too oily, it should soften them too much; by their being hollow they are light, yet their diameters being kept large, they are less liable to be broke; which mechanism being yet more convenient for birds, the bones of their wings, and for the same reason their quills have very large cavities; while the legs of other animals, and particularly of man, have their bones more solid for supporting of weight. Some insects and fishes have shells instead of bones, which serve them also for defence, their muscles being inserted into these at a distance from the center of motion of each joint; their motions are slow, strong and simple: therefore, in this sort of animal, quickness of motion, where it is wanted, is procured by a number of joints, as may be seen in the legs of a flea; and variety of motion, by joints with different directions, as may be observed in a lobster.

Muscles are distinct portions of flesh, which by contracting, perform the motions of the body. Tendons are the same fibres, more closely connected that they may possess less space in a limb, and be inserted in less room into a bone. We may consider the fibres of the muscles comparatively loose, as flax on a spinning-wheel, and the tendons small but strong like the thread taking the spindle.

Ligaments are strong tendons to bind down the muscles, or hold together such bones as have motion.

Cartilages cover the ends of the moving bones, to prevent their attrition.

Membranes, bedewed with innumerable minute unctuous rills, cover or line almost all the component parts of the body; even our true skin or cutis, is a compact, strong and sensible membrane, having nerves terminating so plentifully in all its superficies, for the sense of touching, that the finest instrument can prick no where without touching some of them; and the outer skin, or cuticula, is also a thin but insensible membrane; between these skins is a small quantity of slimy matter or mucus, it is most considerable where the cuticle is thickest, and is black, white or dusky, such as is the complexion; the colour of this, and the cuticle or scarf skin, being the only difference between Europeans and Africans, or Indians; the fibres of the true skin being alike in all men. If artificial machines by casual supplies of oil be made to run glib; the animal frame in this respect seems to have

have peculiar advantages, the joints are tipped with cartilage, and furnished with a mucilaginous matter, called sinovia, their motions are so fine we seem not to have the least feeling of their movements, and the whole machine seems to be amply supplied with lubricating fluids. It is remarkable, that though our joints are so free from friction, yet whether we sit or stand, or in whatever position we be, the body seems fixed and firm, without effort; it seems the bones are stayed by the muscles, as the yards in a ship are kept steady by the braces; if in this the starboard braces be let go, the larboard ones prevail; if in the body a muscle becomes paralytic, its antagonist one contracts and distorts the part. It seems the general idea, that all our motions are performed by contractions of the muscles, that these are produced by an influx of fluids into their parts, and, respecting how this brings about the effect, various have been the opinions; perhaps, if we can content ourselves to derive information from an homely example, in the instance of a cord fixed at the ends, growing tight when wet with rain, and hanging loose in dry weather; we may see the manner of animal exertions; perhaps the parts of the muscle are more closely attracted to each other by the influx of the fluid, and this may bring about the necessary contraction.

To tell how the mind sets the animal spirits in motion, for the purposes of action, or describe how these return information to the mind, seems infinitely removed beyond the comprehension of the most sagacious naturalist; and alike eludes the enquiries of the unlearned, and the subtil researches of the man of skill.

8. *Comparison of Brutes with Man.*] Of all the tribes of sublunary creation, quadrupeds seem to make the nearest approaches to man, in their structure and in their sagacities. Of these, some of the monkey kind bear so near a likeness to him in their fabrick, that anatomists have discovered very little difference in their internal conformation. Of the ouran outang, dissected and thus compared with man, it has been said especially, the tongue, and all the organs of the voice were the same, yet the animal was dumb; the brain was formed in the same manner with that of man, yet the creature wanted reason; an evident proof, that no disposition of matter will give mind; and that the body how nicely soever formed, is formed in vain, when there is not infused a soul to direct its operations. These imitative animals, from copying the manners of man, and being so like him in their figure, have in his eyes a wonderful air of sagacity, which seems to give them a pre-eminence over the other parts of the brute creation; but they are perhaps equalled, or even exceeded in invention, docility, and attachment, by animals that seem of a far less perfect figure. If monkeys, in making their depredations on the corn, or the orchards of the husbandman, plant centinels to give the alarm in case of danger, this policy is observed generally by the other gregarious quadrupeds, in a state of nature, and even by the birds, who might many of them teach the ape a lesson of art, in the nice construction of their nests; and if he do attempt, as some say, a sort of hut, the aukward looking beaver seems to very much exceed him. Indeed the natives of those countries where this little animal exerts its ingenuity, from their leading a roving life, seem scarcely to have leisure to display on their wigwams, an architecture equal to that which the beavers bestow

flow on their huts. The associating together for repelling a powerful invader, is also common to the other gregarious animals as well as to apes; even the sheep, in a state of nature, unite together for the common defence, the ewes falling into the center, the rams taking the post of danger, bravely defending them by help of their horns. Both the hind and fore limbs of animals of the monkey kind, are furnished with a sort of hands, peculiarly adapted for the purposes of climbing, though in this exercise they are often seen upright in their woods, we are told, they naturally run there upon all fours, and hence their palms and soles are equally beaten and callous; that when they are taken, their hands are tied behind them, to teach them to walk upright; that they learn this attitude after some time; and thus instructed, they are sent into Europe to astonish the speculative with their near approaches to humanity, while it is never considered, how much is natural, and how much has been acquired in the savage schools of Benin and Angola.

This animal, so expert in imitation, seems exceeded in wisdom by the unwieldy elephant; and must in attachment and personal courage, yield, with all other brutes, to the dog, that faithful and constant companion of man, which rejoices in finding out and obeying the will of its master.

SECTION IX.

CLASSES OF ANIMALS.

1. *Analyses, Observations, &c.*] The innumerable and various tribes of living creatures which inhabit our globe are: aerial, the birds of the air; terrestrial, man and the beasts of the field; aquatic, fishes; and amphibious, those animals which live both on land and in the water, as serpents, frogs and lizards, tortoises, &c. Insects and worms may be considered as an inferior sort of beings, creatures to be found in every habitable part of the creation; and some of them in their changes, belong successively to the waters, the earth, and the air. Myriads of minute creatures of this description, invisible to us, are found to inhabit places we might suppose destitute of life; where putrefaction prevails, these creatures have their residence; they swarm in the air and a variety of fluids: they inhabit the green leaf, the bodies of living animals, and indeed almost every other substance that is not of adamantine hardness or poisonous quality. We hardly account their bodies as the flesh of beasts, of fishes, or of birds; they are without bones and blood; and have only a white serous fluid circulating through them in place of blood.

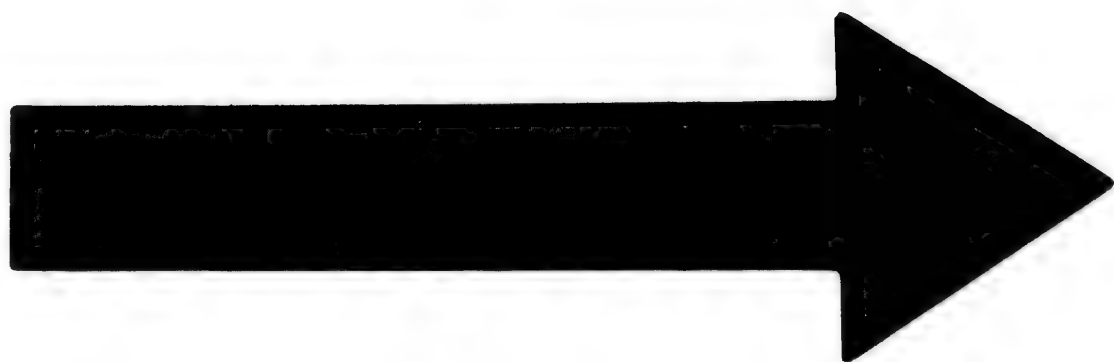
From our being accustomed from our childhood to behold living creatures moving in the waters, we get reconciled to the sight, and hardly wonder how they exist without suffocation. Were we to judge of animal life, however, merely from the feelings we have of our own

own existence, we should foolishly pity them as oppressed by the dense fluid wherein they reside, and ignorantly account their situation unnatural; a slight knowledge of anatomy, however, shews us, that the reverse is the case.

We have already seen the circulation of the blood in the human frame, how the left ventricle of the heart throws it through the arteries, to the remote parts of the body; how the veins take it up and return it to the right ventricle; how this throws the crimson stream reeking to the lungs, there to be fanned by the inspired air, before it be again returned to the left ventricle. The hearts of other animals that live in the air, and that have red blood in their bodies, as beasts and birds, are also formed with two ventricles, and their blood is in like manner hot. The heart of fishes and amphibia has but one ventricle, and their blood is cold; it therefore does not seem to need to be cooled by the air, and it only runs what anatomists call the short circulation. Thus we see in the very different elements, the air and waters, how their inhabitants are naturally fitted for their respective habitations.

Naturalists, in contemplating and describing the innumerable tribes of animals, have grouped them together in a variety of ways; they have classed them according to their places of habitation and ways of life, their outward forms and internal structure, their teeth or bills, their legs, wings or fins, their manner of moving, &c. &c. but whatever divisions they may have made in the immense variety, and however obvious their distinctions may at first seem to be, the gradations between animals of the most opposite kinds, are so minute and imperceptible, that in attempting to draw the animated picture, many creatures present themselves of so equivocal a kind, it seems hard to determine, whether they are insects, birds or quadrupeds, fishes or beasts: thus some of the smaller tribes of fishes, as well as beasts, rise from their humble stations, take wing and flutter through the air, as the flying fish and bat; while some fishes appear but like insects or worms, as shell-fishes and polypi; those of the cetaceous kind, from the whale to the porpoise, have, like quadrupeds, cylindric bones, with marrow in them; like them, bring forth alive, and suckle their young; have their hearts similarly formed; must frequently come to the top of the water to breathe, and would actually drown if kept long enough under water. Hence some account these animals rather beasts than fishes; and indeed the gradations between beasts and these kinds of animals, are so minute and indistinct, that naturalists are at a loss where to draw the line betwixt them; thus in descending from the beasts of the field to the inhabitants of the waters, they are first web-footed as the otter; they are partly covered with scales as the beaver; their limbs are enclosed in their bodies, the extremities only appearing in shape like fins, as the seal or the morse; they live upon shore as well as in the water, and in fine they are without fore feet as the manati, or are only furnished with fins as the whale, and never come ashore. To account for the continuance of these animals under water, seems attended with more difficulty than that of the true amphibia; some have supposed, that during the time they remain under water, the blood accumulates in the arteries, which dilate to receive it; and that by this means the circulation for a while keeps go-

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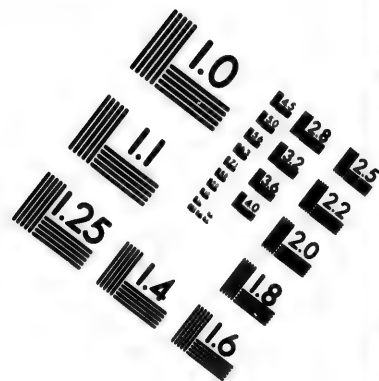
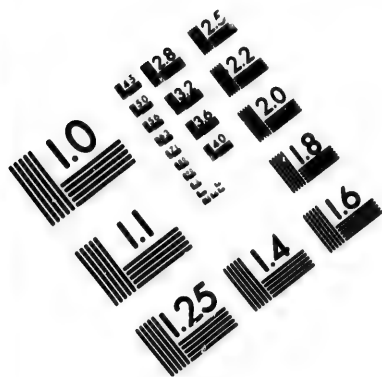
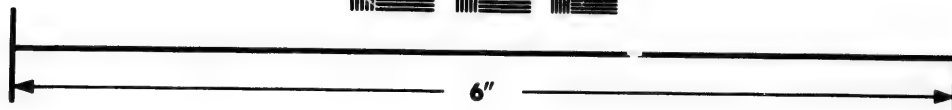
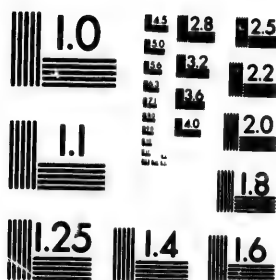


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ing on. There is another way of accounting for it, which in many cases appears to be evidently the cause; between the ventricles of the heart there is originally an aperture, called the foramen ovale, through which the blood is found to make the short circulation, while the animal as yet continues in the womb; on the birth of the animal, when it begins to breathe, the foramen closes up, and the blood is thrown to the lungs, as already described. In some, however, as seals, the foramen is found open, and thus they are fitted for remaining long under water, by the blood circulating immediately through the heart, without being thrown to the lungs. Some birds also lead an amphibious sort of life, as gulls, cormorants, ducks, geese, swans, &c. they, like the quadrupeds just mentioned, are web-footed for rowing in the water, and like them, overtake their fishy prey in their own element.

It is lamentably true, that in some parts of the world, even man is reduced to the miserable necessity of becoming an amphibious sort of animal. Perhaps the gay and gaudy fair, glittering in their pearls, little consider the pain it costs some of their wretched fellow creatures, to procure the little bauble. The shining little trinket is found in the shell, and sometimes within the body of a large kind of oyster. Some have imagined it proceeds from a disease in the fish. This concreted substance is found to be of the same kind with the inside of the shell which encloses it, and which is therefore called mother of pearl. There are pearl fisheries in America, but those of Asia are more celebrated; and of these the chief is carried on in the Persian gulph. The wretched people that are destined to fish for pearls, are either negroes, or some of the poorest natives of Persia. They dive to the depth of fifteen fathom, and continue at the bottom an amazing length of time. Some, as we are assured, have been known to continue three quarters of an hour under water without breathing; and to one unused to diving, a few minutes would suffocate the strongest. Whether from some effort the blood bursts the old passage with it had in the fœtus, and circulates without going through the lungs, it is not easy to tell; but certain it is, that some bodies have been dissected with this canal of communication open; and these extraordinary divers may be internally formed in that manner. If we consider these wretched people in the midst of their business, or experiencing the effects of their unnatural employ, we can perhaps hardly conceive a way of life more calamitous. Furnished with no other covering than a pair of gloves to defend his hands, while he picks the oysters from the holes in the rocks, and a net hanging down from his neck, to hold what he takes, the diver plunges to the bottom by help of a stone; besides tempests and other dangers he has been exposed to, he here becomes subject to suffocation; staring monsters also of enormous size, affright him in this wretched situation; and it is often in vain he labours to conceal himself from their view, by stirring up mud at the bottom: he falls a victim to their voracity, and is delivered from his wretchedness. These divers universally labour under a spitting of blood; the most robust and healthy young men are chosen for this employment, but they seldom survive it above five or six years; their fibres become rigid; their eye-balls turn red; and they usually die consumptive. While, from the construction

struction of the heart and lungs in land animals, and even in some of the fishes, we at once see the air absolutely necessary for their existence; we are not to imagine, that the amphibia, nor even the fishes which constantly keep under water, can live without breathing, though some of them are without any lungs at all. Those who have seen a fish in the water, must remember the motion of its lips and its gills; this without doubt is analogous to our breathing, for if they be stopt, it dies in convulsions. But it is not air, but water, that the fish actually sucks in and spouts out through the gills at every motion; and how it draws its necessary supply of air from the water, cannot be accounted for; but if it be deprived of it by being placed in a basin of water under the receiver of an air pump, and the air be exhausted, it instantly dies.

Having considered the fitness of the several kinds of animals, from their internal structure, for their respective elements, we may now observe their aptitude in other respects to their various manner of life.

2. *Quadrupeds.*] And first of quadrupeds, their heads, though differing from each other, are in general adapted to their way of living. In some, it is sharp, the better to fit the animal for turning up the earth, in which its food lies, or where it finds security. In some it is long, in order to give a greater room for the olfactory nerves, as in dogs, who are to hunt and find out their prey by the scent. In others it is short and thick, as in the lion, to encrease the strength of the jaw, and to fit it the better for combat. In those that feed upon grass, they are enabled to hold down their heads to the ground, by a strong tendinous ligament that runs from the head to the middle of the back. The teeth of animals are entirely fitted to the nature of their food. The teeth in graminivorous animals, are edged before, and fitted for cutting their vegetable food. In the carnivorous kinds, they are pointed, and fitted for holding or tearing. The stomach is generally proportioned to the quality of the animal's food, or the ease with which it is obtained. In those that live upon flesh, and such nourishing substances, it is small and glandular. In those that live entirely upon vegetables, it is very large; and those who chew the cud, have no less than four stomachs, all which serve as so many laboratories, to prepare and turn their coarse food into proper nourishment. In Africa, where the plants happen to afford greater nourishment than in our temperate climates, several animals that with us have four stomachs, have there but two.

Their legs are equally fitted to their wants or enjoyments. In some, they are made for strength only, and to support a vast unwieldy frame, without flexibility or beautiful symmetry. Thus the legs of the elephant, the rhinoceros, and the hippopotamus, or river-horse, resemble pillars. Deers, hares, and other creatures that are to find safety only in flight, have their legs made entirely for speed; they are slender and nervous.

Their feet are also formed to suit their manner of life. They are furnished with fingers for holding, with claws for tearing, with membranes or webs for swimming, or with hoofs for traversing extensive tracts of rugged country. The porcupine and hedgehog, covered with

with sharp quills or prickles, and the armadillo with scales, find security in coiling themselves up, and presenting these to the attacks of their enemies.

Their covering seems also adapted to their wants or situations. The fox and the wolf, which in temperate climates have but short hair, have a fine long fur in the frozen regions, near the pole. On the contrary, those dogs which with us have long hair, when carried to Guinea or Angola, in a short time cast their thick covering, and assume a lighter dress, and one more adapted to the warmth of the country. The beaver, and the ermine, which are found in the greater plenty in the cold regions, are remarkable for the warmth and delicacy of their furs; while the elephant and the rhinoceros, that are natives of the line, have scarce any hair at all.

3. *Birds.*] Birds, next to quadrupeds, seem to demand our attention; and these appear equally adapted to their situations. Formed generally for a life of swiftness, through the air, in place of fore feet, they are furnished with expansive wings, which stretching out as they strike downwards, and contracting as they raise them in their flight, they are thus enabled to support themselves in an element, that is so much lighter than themselves. Their bodies are sharp before for cleaving the air; their legs are light and slender, and with their tails spread out, they steer themselves as with an helm. As these beautiful creatures have to traverse the regions of air, and regard objects afar off, their sight is keen and piercing, their hearing quick, and their voices loud, beyond that of other animals. Like quadrupeds, also, their different tribes are fitted for their particular stations and ways of life. The rapacious kinds, booted to the toes, are furnished with strong hooked claws and beaks, notched at the end for holding and tearing; the crane kinds, with naked and scaly legs, for wading in the water, and ducks, with short ones and web feet for paddling or rowing; their oily feathers throw off the water from their bodies, and their bills are nervous at the point, that they may feel their food in the mud or water. Some, as the ostrich, destined to keep on the ground, have strong muscular legs, and are furnished with short little wings to help them in running. This largest of all birds, is said to be rode on like a horse, and to vastly exceed it in swiftness. Their stomachs are peculiarly formed to the quality of their food: In the rapacious kinds, the œsophagus, or gullet, is found replete with glandulous bodies, which serve to dilute and macerate the food as it passes into the stomach, which is always very large in proportion to the size of the bird, and generally wrapped round with fat, in order to encrease its warmth and powers of digestion. In granivorous birds, the gullet dilates just above the breast bone, and forms a pouch or bag, called the crop. This is replete with salivary glands, which serve to moisten and soften the grain and other food which it contains. After the dry food of the bird has been macerated for a convenient time, it then passes into the belly, where, instead of a soft, moist stomach, as in the rapacious kinds, it is ground between two pair of muscles, commonly called the gizzard, covered on the inside with a stony ridgy coat, and almost cartilaginous.

4. *Amphibia*] The animals which compose the true amphibia, are but few; a short description of each kind may therefore here be attempted.

Tortoises chiefly live upon vegetables, but are also thought to eat insects, snails, &c. These harmless creatures drawing in their heads beneath the shell, which covers them like a pent-house, find in it an asylum against the attacks of their rapacious enemies; they are divided into two classes, the land tortoise and sea turtle, from the places where they are chiefly found; their limbs also corresponding to their respective stations, in one being clawed for walking on the land, in the other forming a strong kind of paddles, for urging their way in the deep; both however are found to be amphibious.

Frogs and toads, while in their tadpole state, live upon the weed their pool supplies; when grown to maturity, their food is insects and worms, for which they leave their native element, and come upon land; there they lurk beneath the cool canopy of an herb, and waiting for their prey till it comes within their reach, with the most unerring aim, dart out their long and forked tongue, which is covered with a glutinous substance; to this the little animal adheres, and is thus drawn into the jaws of its devourer. It is entertaining to observe, how differently frogs are regarded in this and the neighbouring island. In this country, where we have neither toads nor venomous creatures, girls at their hay-making will take them up, and play with or stroke them as they would little birds. In England, many turn from them with aversion, and generally they are cautious in handling them, for fear of meeting with the toad through mistake. The agility of the frog, however, and its bright and polished skin, might obviously distinguish it from the dark and crawling toad, were there real danger in meeting with the latter; but the toad is found to be harmless and inoffensive, sometimes taking up its residence near the habitations of man, and if encouraged to it, even venturing into his dwelling, to be fed at his hand; however nauseous or squalid they may appear to people in health, they are applied to the relief of women labouring under the painful disorder of a cancerous breast; and while they afford succour to the patient, die on the fore. The frog is remarkable for changing with the weather, its colour becoming dull when the atmosphere is dry, and it wants the grateful humidity which moistens its skin, and renders it alert and active. It has been kept and fed to answer the purpose of a weather glass, being heard to croak at the approach of wet weather, but mute as a fish when it threatened a continuance of fair. But of all the wonders related in natural history, that of the toad's being found alive and healthy in the heart of trees and solid rocks, without the smallest issue from its cell, seems the most astonishing; there it has been supposed to have had a torpid sort of existence for ages; but how the egg or spawn which produced it, first found admittance, is not easily accounted for. Into stone we must suppose it found its entrance, while the substance was yet soft and unpetrified; but how shall we account for its finding its way into a tree? Cabinet-makers remark, of so close a wood as mahogany, which grows in sandy soils, that the sand which has got into the substance of the wood, soon dulls the edge of their plane irons

irons; and if this ascends with the juices supplied to the tree, may not the minute and embryo toad find a similar admittance.

Of the lizard kind, the animals are various; in this class we find crocodiles, dragons, salamanders, and cameleons, creatures whose real history may afford entertainment to the contemplative; but to this, romance has added much of the marvellous. Those who have seen the little four-footed newt or arglogher in our ditches, with its body terminating in a tail, may from it form a pretty just conception of the figure of these animals, from the alligator of the river Amazons, of twenty-seven feet, to the small camoleon but one inch long. The camoleon is sometimes eleven inches long. It has been said to feed upon the air; from this it seems to receive great refreshment; it is sometimes seen as it were blown up for two hours together, and then it continues growing less and less insensibly, till it appears quite lean and emaciated; but the air only gets between the muscles and the skin; for the muscles themselves are never swollen; it is hardly ever observed to eat any thing, except now and then a fly, which it takes half an hour to swallow; like the frog, it takes the flies with its tongue, which is as long as its whole body. As this animal's skin suffers such changes, from its being puffed up or only contracted; we need not so much wonder when we are informed, that though naturally of a grey colour, it exhibits, when placed in the sun, a greater variety of colours, than are seen in silks of the most variegated colouring. It is perhaps the most extraordinary part of this animal's history, that it can move one eye singly, or turn them both in different directions, thereby looking two ways at once. The lesser lizards appear generally to be harmless playful little animals, though, like the toad, they be accounted venomous. Of this class of creatures is the flying dragon; its wings are very thin, resembling those of a flying fish; and about its neck are a sort of wattles, not unlike those of a cock; this harmless little creature, which lives chiefly upon insects, and even seems to embellish the forest with its beauty; we can hardly suppose that it ever gave birth to the fiery dragon of romance; this death-dealing creature seems rather to have taken its rise from the ravages of serpents. Salamanders appear less active and beautiful than the lizards of the camoleon kind, but equally harmless; with appetites and manners nearly the same, though fear has charged them with deadly venom; and imagination has even given them an habitation in the fire, a place they can endure about as well as a fish.

The iguana is a lizard about five feet long, and the body about as thick as one's thigh; the skin is covered with scales like a serpent, the back furnished with a row of prickles, that stand up like the teeth of a saw, and the jaws are full of very sharp teeth. This animal, though apparently formed for combat, is a harmless creature, sporting in the water, or living among trees, feeding upon the flowers of the mahot, and the leaves of the mapou, that grow along the banks of the stream, and reposing upon the branches of the trees that hang over the water. Its flesh may be considered as the greatest delicacy of Africa and America; and the sportsmen of those climates easily take it by help of a noose and a stick. The scaly lizards are of various sizes, from the

iguana

iguana to the formidable crocodile, that unpeoples countries, and makes the most navigable rivers desert and dangerous.

But of all the animals that frequent the waters, or inhabit the forests, serpents seem most to repress the audacity of man, and to restrain his vagrant excursions. Against the force or rapacity of other dreadful creatures, arts and arms have been opposed with success. The monsters of the deep have been drawn from their watry element, and their spoils converted to many useful purposes in life. Lions and tigers, with all their ferocity; the elephant and rhinoceros, encompassed with strength; and even the crocodile, with all its terrors, have been taught to submit to the rein, to swell the pomp of monarchs, or rage among the tumults of mankind; but serpents, furnished at once with the most dreadful weapons of annoyance, and the most elusive means of escape, seem in all ages to have baffled the prowess of the lords of the earth. It is the most striking character in the natural history of this island, that it does not give birth to these venomous creatures. Superstition has described this privilege we enjoy, to the prayers of the Missionary Patrick; but as this is an island of herbs, poisonous as well as nutritive and medicinal, perhaps there only wants an importation of serpents, to shew, that Ireland is as liberal in the supplies of life, as other countries are. The frog was designedly introduced into Ireland, and soon multiplied to an amazing degree; and were accident or design to bring vipers among us, we might soon have to be as cautious in piercing through a wood, or rolling on a bank, as other European nations. The serpents of Europe, however, are few, feeble and diminutive, compared with those of the other quarters of the globe. In the warm countries that lie within the tropics, where the climate supplies warmth and humidity, these creatures grow to an enormous size, and multiply in astonishing abundance. All along the swampy banks of the Niger and Oronoko, they are seen twining round the trunks of trees, and carrying on an unceasing war against all other animals in their vicinity. Against one of these dreadful monsters, grown through successive ages to one hundred, or one hundred and fifty feet long, the lion, or the tiger, and even the elephant himself, should seem but feeble opponents. We need not therefore so much wonder at the accounts of the ancients, of a whole nation sometimes shrinking from the ravages of a single serpent, when as yet they had not learned to combine their efforts together in opposing it. Even in more improved antiquity, we are told, that while Regulus led his army along the banks of the river Bagrada, in Africa, an enormous serpent disputed his passage over, and destroyed many of the army; and was not subdued, till the battering engines were brought out against it. These assailing it at a distance, it was soon destroyed. Its spoils were carried to Rome, and the general decreed an ovation for his success. We are assured, that it was one hundred and twenty feet long, by Pliny, who says, he himself saw the skin, which was kept in the capitol. And we have recent accounts from travellers, that there are serpents at this day, which, in spite of all opposition, combat with and destroy the tiger and the buffalo. In this dreadful engagement, their teeth are but of little use; it is by the strong verberation of the tail, by twining its body round

that of its antagonist, and drawing the knot with convulsive energy, the enormous reptile breaks every bone in the quadruped's body, and then at one morsel devours its prey. In fact the largest kind of serpents are none of them venomous, and many of the small kind are harmless and inoffensive. In Africa, they are received under the protection of the natives, and are seen in their houses clinging to the roofs, unmolesting and undisturbed. In some parts, they are idolized as the tutelar deities of the country, and have their temples, their priests, and their sacrifices. In Asia, these beautifully coloured animals meet with equal kindness; and even in Italy, the Esculapian serpent, which is one of this kind, is considered as a useful domestic for destroying the mice; there it is suffered to crawl about the chambers, and sometimes it even creeps into bed to the people.

The venomous snakes are distinguishable from the other, by two large teeth or fangs, that hang out beyond the lower jaw; they grow one on each side, and sometimes two, from two moveable bones in the upper jaw; by sliding these bones backward or forward, they have a power of erecting or depressing the fangs at pleasure. The glands that prepare the venomous fluid, are situated on each side of the head, behind the eyes, and have their canals leading from thence to the bottom of the fangs in the upper jaw, where they empty into a kind of bladder; the fangs are hollow within, and have an opening towards the point like the slit of a pen, through which, when the provoked animal erects these dreadful weapons, strikes them into its enemy, and thus presses them down upon the bladder, the venom makes its way into the wound. It is remarkable, that this venom, a small drop of it thus inflicted, shall contaminate the whole frame, if a cure be not administered; yet a quantity of it may be taken inwardly without any harm; but in fact to introduce any fluid into the circulation of the blood, that has not been prepared in the elaboratory of the stomach, and secreted by the lacteal veins, is enough to destroy the body; even milk, that seems the most mild and nourishing of all fluids, if it be injected into a vein, it will quickly become fatal, and kill with more certain destruction than the venom of a viper. Serpents have a most wonderful capacity of swallowing creatures of greater thickness than themselves; their jaws are held together at the roots by a stretching muscular skin; by which means, they can open them extremely wide; the throat, like stretching leather, dilates to admit the morsel; the stomach receives it in part; and the rest remains in the gullet, till putrefaction and the juices of the serpent's body, unite to dissolve it. After thus gorging itself, the animal becomes quite heavy and torpid; the naked Indian then ventures to assail it, and destroys it at his pleasure. These animals, though thus voracious, are capable of enduring the longest abstinence.

From the long and slender form of the serpent, we might be induced to imagine, the motions and structure in it and the earth-worm, were similar to each other; in these, however, they are very different. The serpent has a great number of ribs, and a back-bone with numerous joints, which it cannot shorten or lengthen, though it has a power of bending it in every direction. This animal, therefore, in its progression, must bend its body, and throw itself forward by its spring.

spring. The earth-worm, on the other hand, has no back-bone, but a number of rings, or a spiral muscle that runs round its whole body from head to tail; it therefore can lengthen or contract itself; can stretch out the slimy fore-part of the body; with this stick to the ground; and then by contracting itself, bring up the rear. The amphibia are remarkable for frequently casting their skins. Many are the creatures which idle curiosity has put to the torture, in order to try how much they could endure; and in such cruel hands, the amphibia have proved themselves extremely tenacious of life.

5. *Fishes.*] Fishes are a class of creatures, that appear, both in structure and sagacity, quite inferior to other animals; though capable of enduring famine an amazing length of time, they appear most voracious creatures; a ceaseless desire for food seems the ruling impulse of their actions; and their life one continued scene of violence or evasion.

Fishes are formed for making their way through the water, in a manner somewhat similar to birds for cleaving the air; in place of wings they have fins; they are also furnished with a spreading tail; this last seems to give the grand impetus in their motions; and to this the fins seem subservient in steering the animal. We have seen among the amphibia, a kind of animals furnished with venom without being themselves destroyed thereby. Among fishes, the torpedo, and some others of the ray kind, afford something still more wonderful in their history; these animals have the power of striking the person who handles them with numbness; if he even but touches them with the end of his stick, he feels the shock; which from its effects, and from this circumstance, appears to be electrical; but how the animal prepares the charge, and how it keeps it from discharging in the dense fluid it resides in, seems quite unaccountable.

Fishes and amphibia are produced from spawn, from eggs, or are brought forth alive.

It is remarkable of many tribes of the brute creation, especially of the lower orders, that at certain seasons, especially on the approach of winter, when they are debarred from food by the severity of the weather, they seek themselves retreats, and go to sleep; where they continue in a torpid state, apparently dead, till the coming of warm weather, which again calls them, to enjoy a more active, enlarged life; and to feed on the banquet the season sets before them. In this way, fishes are said to be bound up by the frost in the northern rivers of the world, till the return of the sun thaws their prison, and restores them to their former liberty. We may perhaps conclude, however, that they are rather lying dormant in the water under the ice, than frozen up in it; so great an excess of cold, should seem too intense for any description of animal life to endure.

6. *Insects and Worms.*] Insects, and animals of the worm kind, seem to form the lowest order among the various tribes of living creatures which inhabit our globe: of this description we may reckon all those which have not red blood circulating through their bodies, whether it be the kraken of the Norway seas, a mile and a half in circumference, raising itself in the water, its antennæ or arms, at first appearing like a number of small islands, and then like a forest of prodigious

digious large trees; or the animalcule, that from its minuteness, escapes our sight, and which in flaking our thirst, we may swallow by thousands; whether it be the snail or the lobster, the flea or the scorpion, the worm or the fly.

Whatever has been related of the voracity of the amphibia, their tenacity of life, or their frequently casting their skin, seems peculiarly to hold in the lower class of animals; among these, the tearing away of a limb, appears to be but a small calamity: the lobster, the crab, the spider, and others, frequently in their combats meet with losses of this kind; but they soon grow again. This seems extraordinary; but what shall we say of those that seem to multiply even by destruction? The earth-worm, when cut in two, is seen to become two distinct creatures; from the head end a tail is soon found to issue; and from the tail part, by slower degrees, a new head proceeds: but animals of the polypus kind, seem to offer in their history something still more astonishing: these creatures, which appear like vegetable substances floating on the water, are found to be real living animals hunting their prey. The body of this animal appears like a bag, surrounded at the mouth with a number of antennæ, or arms, with which as feelers, it finds and draws in its prey; these it can contract or lengthen at pleasure, and indeed its whole body seems capable of the same dilatation or contraction; so that its form is scarcely fixed or certain, but changes in size and figure according to its motions, or the variations of heat and cold. On their bodies are discovered a number of wart-like protuberances, which are found to be themselves young polypi, feeding and fishing for themselves, while they at the same time derive nutriment from the parent; these every now and then drop off to make way for others, and to become themselves the heads of similar colonies, which even begin to bud before the separation from the parent in maturity. Some may wonder at the magnitude of the elephant, and others be astonished at the smallness of the animalcule; but of all the animals that are found in the creation, the polypus seems most a prodigy to the philosopher; it has been twisted and twined, and turned inside out; it has been cut to pieces both lengthways and crossways, still it was found to retain its vivacious principle, each part becoming an animal of itself, and like its original, the parent of a colony. As these animals seem the most imperfect in their formation, so they offer a wonderful variety in their size and their shapes. The kraken is said to be an enormous polypus, and sponges with the strange variety of coralline substances which appear like plants in the sea, and in some parts obstruct navigation by their growth, are all accounted the fabrications and cells of minute creatures of the polypi kind. To understand how they are capable of rearing such works, and indeed how all shelled animals are furnished with their covering, it is necessary to observe, that their bodies are supplied with a slimy matter, which as it oozes out, and sometimes perhaps joins with extraneous substances, acquires the coralline consistency, the toughness of sponge, or the hardness of shell. In this way the lobster obtains its casing; and in this way the snail is observed, as it grows bigger and bigger, to add layer to layer to the mouth of its shell, until it has obtained its largest volutions.

Among

Among the amphibia, we have seen serpents furnished with venom; among insects there are creatures furnished with similar weapons: the scorpion has been noted from antiquity for its venom; and the spider, however harmless it may appear to us, is furnished with a poison under its claws, sufficiently destructive to the minute creatures it preys upon; but of all the spiders we have ever heard of, the most extraordinary things have been related of the tarantula; this animal is about three quarters of an inch long; and in the fields of Italy, sometimes bites the peasants as they are mowing down the grass; a slight inflammation ensues, as from any other puncture, which heals without danger; they affect, however, to feel, on this occasion, a variety of extraordinary symptoms and passions, only to be removed by the powers of musick. This deception has long been imposed upon the rest of Europe, but is now well known to be all a collusion. The credulous traveller, however, who wishes, when from home, to see all that is marvellous, may at this day, for a trifle, be entertained with the extraordinary farce: the actors produce this famed little insect, and one of them suffers himself to be bit; he alternately appears to be convulsed with laughter, and depressed with melancholy; the fidler then administers the never-failing tune; he begins his air easy and slow, and rises and quickens by degrees, till at last he sees his dramatic patient dancing on the floor; and thus concludes the unbecoming farce.

Many are the volumes that have been written on the history of insects; and some have been so much enamoured with the subject, as to pursue it with a diligence, equal to that of the bee or the ant they contemplated. They have minutely examined the formation of these little creatures at the several periods of their existence; they have observed them as worms breaking from the egg, or the body of the parent; as crawling about in their reptile form; as being entombed for a time in their aurelia or chrysalis state; as bursting from this prison, and enjoying an enlarged existence; and as busily employed in depositing their eggs in the earth and other places, to be ripened into life by the return of spring; their associations and animosities, their arts and their manners, they have watched and described, and the picture is somewhat similar to that of the higher tribes of animals: among these, there are graminiverous creatures, harmless and weak; and among these, predacious and vindictive destroyers, furnished with formidable weapons, and cased in dreadful armour, which unrelentingly deal death among the feeble and the helpless. Some of these minute animals have been rendered subservient to the uses and luxuries of man, as the cantharides, the bee, the silk-worm, and the cochineal fly; but in general, from the havoc they make among vegetables, he regards them rather as enemies than friends.

Insects seem some of them to have no eyes at all; some appear to be furnished with two; and some with a great many; but, like the fishes, without any eye-lids: their mouths, in general, open in a direction contrary to that of other animals; and some of them are furnished with a proboscis or trunk. Other animals generally breathe through the mouth, these are found to breathe through openings in their sides; but of all the marks whereby they stand distinguished from

from animals of the higher orders, a perfect want of docility, or an utter ignorance of and inattention to the will of man, appears the most striking. Quadrupeds and birds have been brought to be very tractable and attentive to instruction; and even serpents have been taught to come at a call, and perform a variety of motions at command; but these unintelligent creatures, and with them we may reckon fishes in general, seem altogether incapable of varying their actions, or of submitting to instruction, and only regard man like any larger animal, only observe him to fly from his presence, or to feed upon his body.

PART

P A R T III.

PICTURESQUE AND GENERAL SKETCHES

OF THE

DIFFERENT PARTS OF THE EARTH;

AND THE

VARIED APPEARANCES OF ITS INHABITANTS,
BOTH MAN AND BRUTE.

SECTION I.

DIVERSITY produced by CLIMATE and DOMESTICATION.

1. *A general Sketch.*] IF we take a general view of the regions of the earth, we shall find, that from the variety of climates, of soils, and from many other causes, life and its conveniences are variously supplied, and in very different measures, in the several habitable parts of our globe: from the prodigious ridgy mountains, and extensive sandy deserts, or the ever flourishing and luxuriant landscapes at the equator, where the most exquisite fruits and delicious viands spontaneously grow in exuberant profusion: where the waters and the savannahs, the fields, and the forests, all teem with life, from the multitudes of their inhabitants. From these glowing climes, to the cold and frozen poles, where life and vegetation seems quite extinct, and the earth and the waters are stiffened in frigidity; all along the convexity of the globe, the scene is ever changing, and man as well as brute, and beasts as well as plants, all are influenced by the variety.

2. *Diversity of Figure in Man and Quadrupeds.*] The changes that the human species have undergone, from the difference of climate, soil, food, manner of life, and other accidental causes, are astonishing, insomuch, that some have called in question our universal descent from Adam, the common father of mankind; however, when we consider how regular and slow the gradations are from the black complexion to the brown, from this to the fair, generally varying by imperceptible degrees with the climate, we shall perhaps find but little reason to join these in their opinions: and the scriptures of truth, which account for the disorders in the creation, the variety of languages,

languages, and many other things which fall under the observation of the philosopher, may in this particular, as well as others, even on mere rational principles, maintain their ground against the doubts of the sceptic.

That climate is capable of operating very powerfully upon man, may rather cease to be marvellous, when we consider how much more the lower orders of the creation are affected by its influence; in fact many of these are confined to particular countries and climes, and are found no where else, while man, the child of every climate, and tenant of every soil, inhabits the several regions of the earth, from the accumulated snows of the cold and frozen poles, to the glowing tracts of the torrid zone. It is true, he has many arts of evading the severities of inclement skies, with which the brute creation is unfurnished; and this seems to give him a superiority, which also domestic animals derive from his protection, and are thus enabled to accompany him in his peregrinations. By his superior intellects, rather than finer formation, he is enabled to become the lord of the earth; by these, by association, and by labour, which is his lot, he has reduced the beasts of the field to his obedience; by these, the howling savage, that would alike prey upon him and his flock, he has driven to the distant recesses of the wilderness; by these, he is enabled to form and guide the crooked plough, the canoe, or more stately bark; to traverse the expanse of unfathomable waters; to draw bread from the thistle and thorn-producing ground, till he return thereto; and by these, notwithstanding the creatures, and even the elements, seem to offer violence to his person and his labours, he finds the earth has been given him for his habitation, and the sea for an inheritance. To describe the persons of the people of our own nation would be exceedingly difficult, and might here seem superfluous; as the best method of acquiring the information, is by looking about us; it is however curious to observe, in those countries where arts and sciences are cultivated, and where the manner of life is consequently various among the inhabitants, the variety of figure, stature, and complexion, that is found in their persons. How different in appearance is the man who works in the fields, or at some laborious business, from the student or minute artist, effeminated and pale by their employ within doors, or the citizen, grown quite fat with luxurious living. What different habits are imposed on their constitutions, and how different the effects they naturally produce: but these different distinctions, however, they may hold in general, they do not invariably mark the individual; this indeed can hardly be expected, where these different descriptions of people are so constantly intermixing with each other. Among these, therefore, we should hardly expect, that their outward figure should nationally characterise them. Though the Frenchman seems to differ rather in person from his neighbours, the Hollander or Spaniard; and though the most ancient inhabitants of these islands, may sometimes be thus distinguished from the more mixed and later English, yet the difference seems often so minute as to escape description, and what an assimilation in their manners, seems continually to render less and less distinct. It is among people that are collectively alike in their manners and circumstances in life, we may look for national characters; and those nations that live more at large than the sons of Europe,
that

that individually draw an easy subsistence from the kindly soil they inhabit, or equally labour under the severities of inclement climes; that without distinction hasten to the waters, or join in the chase; they seem generally to be strongly marked with figure, complexion, and features, characteristic of the climate or soil they inhabit. Besides this, particular tribes, and sometimes whole nations, are attached to particular habits and customs, which affect their persons, and particularly characterise them, as a people distinct even from their neighbours, whom perhaps only a river or a mountain divides from them. Thus some nations, as the American Indians, have for ages been endeavouring to extirpate the beard, by plucking it out by the root; some, from a savage idea of finery, or to prevent the swarms of insects from annoying them, by bedaubing their bodies with tar, fat, or paints, have given their complexions an artificial hue of darkness; some by boring and continually drawing down their ears, have at last got them to touch their shoulders; the nose, in like manner, and even the whole head, as well as the feet, by a variety of bandages, or by squeezing between boards, when in an infant state, and capable of receiving the impression, without destroying the subject,—the skull has been brought to assume artificial deformities; and thus we may account for the flat heads of Canada, the conical ones in Asia, the flat noses of the negroes, the small feet of the Chinese, and many other varieties, that have been at first introduced, not without violence, that custom has kept up, till grown into a sort of constitutional habit, and which it would perhaps take some generations to wear out, if the restraint were removed. But what are these artificial varieties, compared with what have been imposed on domesticated animals? These, our humble partners in the creation, appear often to be so changed, both in shape and in habit, from what they were in their native wilds, as to look like quite different creatures. By the assiduity and art of man, the horse is improved in speed or in strength, to suit his convenience: the sheep becomes helpless and covered with long wool, to furnish him with raiment: the cow, that is a fierce and bellowing brute, when in the forest, becomes, under his care, gentle in its manners, and supplies him with milk, or bows its neck to the yoke: in Ethiopia, it has been taught to tend him his sheep, to tread out the corn, and like the elephant and rhinoceros, to fight him his battles: and the Jog appears to have gone through innumerable varieties, to suit his different purposes, and gratify his humours.

To observe more particularly the influence of climate on the different orders of the creation, man, though he appear to be very much affected thereby, will perhaps be found less so than most other creatures.

3. *General Divisions of the Diversity in Man.*] If we take a look around us on the people of our own country, we may pretty much see the appearance of all the polished nations of Europe; pretty much the same features appear to mark the northern nations of Africa, and those also of the western parts of Asia, from the borders of Europe to the Indian ocean. As these nations collectively include most of the people we have read of in the records of antiquity, whether Jews or Egyptians, Babylonians, Medes or Persians, Grecians or Romans; as

Adam

Adam appears to have been created, the ark of Noah to have rested after the flood, and the most important events to have happened the human race within the countries they inhabit, especially in Asia; in the persons of any of these people, thus widely disseminated, we may perhaps see a pretty good likeness of the first ages of mankind, if we make an allowance for the caprice of dress, and for the taking off or fantastically disfiguring the beard. Of the numerous people here mentioned, the nations of Europe, the Moors and Egyptians, the Arabs, Turks, Persians and Indians; if we regard merely their colour, this varies by slow and imperceptible degrees, from the fair complexion of the northern nations, to the swarthy Spaniard and Moor; and from these to the olive-coloured and black Asiatic. In the countenances of all these, however, there seems a beautiful symmetry; or a certain neatness and delicacy of feature, which does not appear to us either in the flat noses or thick lips of the inhabitants of the torrid regions of Negroland and Guinea, or in the broad faces and high cheeks of the Laplanders and little Tartars, of the bleak and frozen zone.*

But while we imagine we discover a certain beauty and delicacy of expression in the features of this widely diffused people, and are ready to account those of the Negroes or Greenlanders as coarse, rude, or deformed, and as produced by their suffering the last extremity of heat or cold the human constitution can endure, and by their leading a savage life; perhaps either the hardy little inhabitants of the frozen zone, or the full-grown negroes, under the line, might with as much fitness account us deviations from the proper human figure, and esteem all the delicacy we discover in our shapes, as only the effects of domestication and effeminacy. However, let nations contend how they please for superiority of feature or figure, this is found to depend merely on the clime they inhabit, and their manner of life; and as European adventurers are found to lose their fair complexions in a few generations, and become swarthy or black in hot climates, or little and stunted in cold ones, their features at the same time correspondently changing, so also the inhabitants of cold or torrid regions, are found in a similar way, to lose their original complexions and features, when under the climate and customs of the temperate zone.

To speak of the human form thus susceptible of change, and like an humble plant depending on the soil where it grows for its appearance, may to some appear rather degrading; but when the lot of human beings is considered, what different countries we have to inhabit, and what various modes of life to pursue, we shall have reason to admire the flexibility in the constitution, which adapts itself to the duties and habits imposed on it, and thus fits us for undergoing the many irregularities inseparable from this life. While the human figure is found to vary all over the earth, from different causes, and that by such slow and imperceptible degrees, by passing over the lesser varieties, and regarding only the most obvious divisions, we may perhaps with some fitness

* It is the persons of these the statuary and painter have taken as models in their finest compositions; from these they seem to have derived all that they term sublime and beautiful in the human figure; from these the ancients sculptured their idols; and from these the moderns have, with the addition of birds wings, designed their fanciful representations of angels, and the queer bodiless little monsters, to which they give the name of cherubs.

fitness consider the whole human race under the three following distinct appearances: the Citizen, the Tartar, and the Negro.

I. Under the citizen may be included, the numerous nations already named, inhabiting Europe, the northern parts of Africa, and the western parts of Asia, to the Indian ocean. Though some of these, as a few tribes of Arabs, dwell in tents till this day, and lead a roving life, yet they generally answer the description of what is called a polished people; and some of them seem to have done so since the days of Abraham and Lot; these are the people, however, different in complexion, whom we account regular featured.

II. The Negro, under the line, being daily exposed to the direct rays of the sun, and going almost naked, varies from the citizen, in being quite black, in having short woolly hair, a broad flat nose, and large tumid lips. From the equinoctial line southward, to the Cape of Good Hope, these characteristics seem gradually rather less distinct; and on the north, roving tribes of Arabs in the desert of Zaara, seem to form the shade between these and the Moor.

III. The Tartar, of the polar regions, between 4 and 5 feet in height, seems, from his bleak situation, to become less in stature than the rest of mankind; the severity of the cold producing effects in his complexion and features, something similar to those endured by the Negro: the visage in these little men is large and broad, the nose flat, the mouth large, the cheek bones high, and the complexion dark.

This description of people is found to inhabit the northern regions of Europe, Asia, and America, all round the pole, and comprehends the Laplanders, Esquimaux, Indians, Samoiede Tartars, the inhabitants of Nova Zembla, the Borandians, the Greenlanders, and the natives of Kamtschatka; the features of this people seem to prevail through the different tribes of American Indians; they are also seen to faintly have place in the persons of the Chinese and Japanese, and in the southern tracts of Asiatic Tartary, and the northern regions of Europe, to blend imperceptibly with those of the citizen.

The broad features and dark complexion, seem also to obtain in the south sea isles, and indeed in all parts of the world, where the people have for ages led a roving kind of life, or been continually exposed to the open air.

4. *Longevity.*] It is remarkable, that while the human form undergoes such changes, from climate and other causes, length of life seems pretty equally distributed among different nations and orders of men: the cit, on his turtle, and the peasant, on his vegetable fare, the Greenlander among his native snows, and the African in the torrid zone, they all appear to grow old together, and the period of their years seems more nearly equal than might have been expected.

5. *Lower Orders.*] The diminution of stature that the inhabitants of the polar regions undergo, from the severity of cold, seems small, when compared with what the lower orders of the creation endure. In general warmth and moisture seem favourable to growth, as well among the animal as vegetable tribes of creatures. Insects as well as herbs, that with us appear of a tolerable size, in the arctic countries seem

seem quite diminutive; while in the luxuriant regions of the torrid zone, they encrease to an amazing size; there the spider grows to the size of an hen's egg; the butterfly spreads an expanse of wing as large as a sparrow; the toad appears as big as a duck; the oyster is a meal for eight or ten men, and the shell is in diameter like a small table: there also the bat, in size like a rabbit, is found a formidable enemy, and has been thought to be the original of the fabulous harpy of the ancients; the largest serpents and crocodiles, the huge hippopotamus, elephant and rhinoceros, are all of them natives of the torrid zone. With the spotted skins of the savages of those glowing regions, the showy horseman adorns his steed; while the women are supplied for convenience or dress, with the more delicate furs of the little quadrupeds of cold and frozen climes.

The cold climates of the north, however, are not without their productions of magnitude; witness the timber their forests supply to the southern states of Europe; their seas also produce fishes of the largest size; and on land, the white bear is an animal of great magnitude and strength, and untameable ferocity; their deer are also of a very large size; while the chrevotin of Africa, or little Guinea deer, about seven inches high, and twelve inches long, with legs almost as small as the shank of a pipe, this neat little creature, looking like a stag in miniature, may shew, that the torrid zone is not without its minute productions.

To survey at large the several nations of the world, and their various manners; to take a general view of the curiously diversified quarters of the globe, we may set out in imagination on a tour through the earth, and sweeping round the terrestrial ball, sketch the various prospects that arise as we pass along.

6. *Transportation of Convicts to Botany Bay.*] From the remote situation of the southern parts of the world from the nations of Europe, we have as yet but little acquaintance with those distant regions; but from the resolution of government to transport convicts thither, it may appear somewhat probable, that the language and manners of our nation, may some time hence obtain among a people that are nearly our antipodes; and many of the people of these islands may be highly interested in what is going on in the parts of the earth opposite to our feet. Botany bay lies in the south sea, on the east coast of New Holland, (which appears to be an island almost as large as all Europe,) a voyage of about thirteen thousand miles sailing, from this part of the world, is the place intended for colonization by the English. However we may regard this determination of the legislature, with dubious sentiments and expectations, whatever severities might seem due to the delinquents, it were to be wished, greater honour had been done to the requests of their wives: the public papers inform us, that numbers of these afflicted women came to the ports where the vessels lay ready for sailing, and offered to accompany their husbands to their exile; their request could not be complied with; they were ordered to their parishes. What a pity it was they were not indulged! Through these faithful women ready to follow their husbands, it might be literally said, to the end of the earth, what might we not have expected of reformation and refinement among the degraded

degraded members of the infant colony, now doubly mortified, and perhaps made more desperate.

What may be the event of this extraordinary embarkation, we must leave for a future day to unfold. It is time to enter more generally on the proposed sketch of the earth; the accumulated accounts of travellers through many ages, furnish out scenery very amply; but of the multiplicity of the objects that offer themselves for exhibition, in the varied picture; to select the most proper, and group them fitly together, seems a task indeed arduous.

SECTION II.

SOUTH SEAS.

1. *Polar Regions, Mountain and Flat Ice.*] The southern parts of the globe endure a longer winter than we do in the northern hemisphere; and those that have attempted to navigate their seas, have found the way embarrassed and blocked up, by vast fields, and prodigious mountains of ice, before they reached latitudes equal to some that are annually passed in the northern ocean; so that whether it may be sea or land that invests the south pole, must remain in uncertainty; and indeed it seems of little consequence to know the aspect of those parts, where life seems to be shut out by the rigour of frost. Navigators, however, have sailed far enough southward to get within the continual glare of the six months day, and gaze on the dreary prospect of ice and of snows, that seem for thousands, and tens of thousands of miles, to encompass the pole. The mountains of ice, that rear themselves to astonishing heights above the surface of the waters, and that meet the mariner's eye at a great distance, seem to be some of the most curious appearances in nature. These unstable hills are seen also in the northern seas, sometimes floating away to the warmer climates on the south, to be melted down and mingled with the waters of the ocean; at other times arrested by obstructing shores, they take a fixed station, and appear higher than the mountains ashore. Naturalists in accounting for the origin and accumulation of these enormous masses, observe, that the flat and the mountain ice are of different kinds, and differently formed; the flat ice is the surface of the sea congealed by cold, which on being dissolved, is found to be salt; on the contrary, the mountain ice has only a thin shell of salty ice over it, formed from the spray, or waves of the sea, washing against it: it is principally composed of fresh water, intermixed with gravel, earth, brushwood, &c. and produced upon land, especially against the sides of hills, where thaws of a short duration sometimes take place; on these occasions, the water runs down from the springs and melting snows at the top, but is presently stiffened by the frost: by depositions of this kind, and by frequent falls of snow and rain, the mass continues to accumulate, till forming a tremendous precipice,

over-

overhanging the deep, it at length tumbles down, with a noise like thunder, and with a force sufficient to upset a poor Greenlander in his little boat at a very great distance. From this account of the origin of ice mountains, it should seem pretty clear, there must be tracts of land about the southern pole: indeed it seems possible there may be not only land, but even numerous nations, who may enjoy these native snows, as much does the Greenlander, though appearances it must be owned are against this supposition, as the discoverable lands which lie nearest the south pole, have been found barren, bleak, and destitute of inhabitants; and some seem to think, that the flat ice, broken as it generally is by perpendicular fissures, may accumulate into those enormous mountain-like masses, by being dashed one against another, and by being heaped one over another by the commotions of the sea; thus by the vast tracts of the ice driving one against another, enormous lumps of it are sometimes seen to be raised out of the water, tumbling one over another, cracking, breaking, and shivering with a noise like thunder.

2. *South Sea Islands.*] Leaving however these regions of conjecture, and taking our departure from the enormous barriers of ice which have blocked them up from the view of European adventurers, the first lands that offer themselves to view, are the islands of the south sea; these exhibit scenes interesting, beautiful, and curious; here no longer dreary tracts of ice and solitary wilds assail the eye, but beauteous prospects of verdant isles, enlivened with columns of smoke, which bespeak the haunts of men at hand, and diversify the face of that world of waters, cheer the drooping mariner, and promise him a recruit from his sickness, and a respite from his toils. This larger half of the earth, the great south sea and pacific ocean, was long unknown to the nations of Europe, even after the discovery of America; and during this uncertainty, theorists amused themselves with fancying that there must be a southern continent, to balance, as they expressed it, the northern parts of the globe. To find this terra incognita australis, has long been the employment of some of the ablest navigators in Europe. Among these, James Cooke has perhaps been most eminent; in fact, he has hardly left unexplored a tract sufficiently large to merit the name of continent, even on the supposition of its being all land.

3. *Productions.*] A few of the islands that lie in high latitudes in the south sea, have been found desolate and uninhabited, except by animals of passage, as birds and seals; and these from their being unacquainted with man in these solitudes, were so tame as to let the sailors come and knock them on the head, without attempting to flee. The other isles are generally fertile and pleasant, their hills being covered with verdure, and pouring down pleasant streams, the soil producing spontaneously bread-fruit, cocoa-nuts, bananas, nuts, apples, plantains, sweet potatoes, yams, sugar-canes, and other vegetable fare; the forests furnish large and valuable timber; the seas supply a variety of delicious fish; their fowls are numerous, and of various kinds; their land animals, besides a few rats, are hogs and dogs; the dogs are fed upon vegetables, and make a part of the food of the natives, a part not at all inferior to English lamb, if we may take the opinion of the English, who partook with them of the banquet;

quiet; and those islands that are not very remote from the continent, as New Holland and New Guinea, seem to afford a variety of other animals. Happy isles! where the fabled golden age seems in many parts to be realized; and where in others a very small labour of tillage might more than supply every deficiency: and what, thrice happy people! secluded from the tumults that distract the ancient world, and deform the page of history, are the possessors of these isles?

4. *Manners.*] The tender-minded and peaceful may observe with concern, that in these sequestered spots, evil prevails as well as in the more busy parts of the world. The adventurers generally on appearing on their coasts, found these simple people, though unacquainted with metals, were not without their instruments of war, which they ventured for a while to oppose to the more destructive arms of the Europeans; and though the expeditions appear to have been rather intended for the promotion of science, and the extending of commerce in a peaceable way, it is to be lamented, that the Indians, many of them, lost their lives in the unequal contest. These poor people, whatever opinion they might entertain of the strangers, at first generally came down on the beach to oppose their landing, with arrows, stones and lances; they sometimes even ventured in their canoes to surround the vessels, and heave in their offensive weapons among the people, which were answered by others more alarming and effective; and when they came to a better understanding of the design of the Europeans, even then they scrupled not to take from them by stealth, and sometimes by force, whatever they could carry off; they would snatch the hats off their heads, whip the handkerchiefs from their necks, and carry off with amazing dexterity every little implement they could lay their hands on, as clothes, knives, pistols, the mathematical instruments, they even ventured on their boats and guns; and these depredations brought on contests, which sometimes terminated in bloodshed. But of all the baits that ever fell in the way of the poor Indian, nails appear to have been by far the most alluring; while their larger tools, their hatchets, or axes, for forming the canoes and other weighty operations, were made of hard stones; while for points to their arrows, their lances or fishing tools, they had prepared sharp pieces of hard wood, and bones of fishes; while these, little stones, shells, and human bones, formed their apparatus of drills, chizels, razors, &c. nails according to their different sizes and shapes, might themselves appear suited to answer every purpose. For nails they sold their pigs, plantains, cocoa nuts, and other produce; in fact nails and European hatchets, together with beads, glasses, or trinkets, became the medium of trade, or the specie of the south sea.

The surprise with which these simple people were struck, on their first becoming acquainted with a variety of things, with which we are familiar in Europe, affords something amusing. The officers are at breakfast, and fill the pot, by turning the cock of the tea-kitchen, the Indian turns it also, and holds his hand to receive the water; he is scalded, screams out, and by the painful experiment, finds there are other vessels besides those of cocoa-shells, that they may be set on the fire and that water may be made hot: he attempts to use their
knives

knives and forks, but when he sets about to eat, his hand indeed comes very naturally to his mouth in the old way, but the meat on the point of his new fangled tool, passes off to his opposite ear: he looks through the telescope, and sees objects at a distance, he withdraws his eye, and is amazed they are vanished: he scampers off affrighted, or stands in silent horror, when he views the formidable gun, dealing death at a distance, and bringing down from their heights the fleetest passengers of the air: he is astonished at the sudden appearance of the Indian in the looking-glass; he looks behind it, and finds nobody there; he steals another glance; the glance is returned; he gets familiar with the image, and cannot but smile; the shadow smiles also, and he laughs out immoderately. Thus childish appeared the conduct of the inhabitants of the south sea islands, and well would it have been, if they themselves had been as innocent, as their manners seemed simple; this however was so far from being the case, that their history affords perhaps one of the most melancholy pictures of the depravity of mankind, to be met with upon earth.

Some geographers and historians, a little before their discovering these islands, seemed beginning to treat as fabulous, the accounts of Anthropophagi, as handed down by the ancients, or related by modern travellers, and fitted only to furnish with the marvellous, the romantic page of a Robinson Crusoe. In the history of some of these islanders, however, we have a melancholy proof of the existence of cannibals, and indeed of many other descriptions of barbarities. In their wars with each other, they give no quarter, but with a savage ferocity, cut up the bodies of their enemies, and devour them; satiating at once their hunger and revenge; for as the Greeks believed those to be doomed to wander solitary ghosts on the banks of the Styx, whose remains were let to lie unburied on the earth, these hold, that the souls of those whose bodies have been thus devoured, suffer torture in the other world, of which however their notions are very confused: they cut out their under jaws, and hang them up in their dwellings, as trophies of victory: they offer up human sacrifices to their Etoo or God, and the victim to these gloomy and horrid rites, is a criminal, a stroller, or one of the poorest class of people, any helpless or friendless poor fellow, whom the chief may think fit to mention, and to whom his servants only give the notice, by knocking him down, and immediately putting him to death by clubs and stones. As offerings to their deity, they also knock out their own teeth, and cut the joints from their fingers. As the eree or king may order his subjects to be sacrificed, so those of the lower orders may kill a thief with impunity; and for the life of a slave, a present to the master, when his anger has subsided, is found to be an atonement. With people who hesitate not to appear naked in public, and who uncover their whole bodies, both men and women, by way of respect, as Europeans take off their hats, we shall hardly expect to meet with much tenderness and delicacy of the connubial kind. Among these polygamy is practised by both sexes; in their tents or sheds, whole families sleep together upon one common floor or bed, and their actions and their words are barefaced beyond expression. This is not all; the fathers prostitute their daughters for hire, and the purchaser may keep her for his wife, or may kill the children and put her away, or the father will

will take her from him if he get a more lucrative offer. In the violence of grief for the death of a friend or relation, or in the excess of joy on their return from afar, or from dangers, they weep profusely, and beat their cheeks and breasts, or strike a shark's tooth in their head, and mingle their blood with their tears.

At this affecting scene, the natives are often unconcerned; and the actors themselves, when the moments of passion are over, plunge into the sea to wash themselves, and seem to forget it. A people thus violent and unsteady in their temper, must necessarily be unsteady and fickle in their conduct; this, poor Cook, in his last voyage, fatally experienced among a people, with whom he had been on very friendly terms, and who revered him as a god; he fell a victim to their sudden rage, and was sacrificed or devoured.

They are yet without the knowledge of preparing by fermentation liquors that intoxicate; their drink being principally water, and the milk of the cocoa nut; they however, like other nations, have their favourite beverage, with which they entertain their friends; the name they give it is kava. The kava is produced from the root of a kind of pepper, in a singular sort of way; the people take each a piece of the root in their mouths, and chew it like tobacco, till the saliva flows; a bowl is then handed about for each of them to spit into; when a sufficiency of the decoction is thus got together, the vessel is handed to the chief and his guests to regale themselves therewith; and however nauseous we might account such a potion, they it seems prefer it to the liquors we make use of. The kava, however, is found to impair the constitution, and when taken to excess, will produce even madness.

Such of them as wear cloaths, use them generally as a loose mantle; they are made of strong grass, braided together or wove like silk mats, and of a kind of cloth which they make of the bark of the mulberry, or cloth tree, by taking off the hard outer rind, steeping it in the water till it is soft, and then beating it out with a square wooden beetle, which has longitudinal grooves on its different sides, from coarse to fine, and these leave a grain on the cloth, like that on paper, but a great deal more coarse; they then bleach and dye it of different colours, and in curious patterns. Besides this, and trinkets, and dressing the hair, and decorating it with feathers, they have other methods of making themselves fine, beyond what any European nations practise; these indeed are painful, but their effects are lasting; they tattoo their faces and different parts of their bodies, in lines and curves, and checks and volutes; this they do by puncturing the skin, and rubbing in paint; and this fixes an indelible stain. Their huts are framed with posts and wicker work, and covered with bark and leaves; their cloth and mats they also use as carpets. They have their games or athletic exercises, in which they shew uncommon agility, and great good humour, boxing and wrestling with astonishing violence, so that the sailors did not chuse to accept their invitation to partake in the sports. They have their dramas and dances, and concerts of vocal music; to these they add a kind of drum, and a whistle made of reed, and which they sound by applying to the nose. They bake their meat in ovens or holes, which they dig in the ground, and line with stones; in these they kindle a fire, and when the place is

sufficiently hot, they remove the ashes, and put in the meat, sometimes a whole hog, wrapt up in leaves, and then cover it up with hot stones and earth; in this manner it retains its succulency, and is found superior to the cookery of Europe.

There are philosophers who may tell us, "That much of our abhorrence of the customs of these people, originate only in our manner of education; that they are one with us in disliking every manner of cruelty, violence, and bloodshed; yet our abhorring the practice of feeding on human flesh, is altogether a weakness; that the body of a man affords as good nourishment as that of a pig; and that it is no greater sufferer from being destroyed in this way, than on the funeral pile by fire, or in the grave by putrefaction and worms:" they may say that the use of cloaths ought to depend entirely on the temperature of the climate; and that in countries that are hot, they are only a superfluity; that our objections against the manners of other nations in point of dress, are nothing at the bottom but prejudice and habit; that chastity is found where they make no use of clothes, and the reverse, where attire forms a principal part of their pleasures and employment.

It must be owned, that the effects of education are generally very powerful on the manners and habits of mankind; and that we may often imagine we are acting from principle, when in fact we are only copying the ways of those that are about us; yet the soberly terrifying of the remains of our fellow mortals, and the cloathing of these bodies while on the way to their dissolution, have an origin, we must acknowledge, in decency and religion, as well as mere convenience, when particular duties do not dispense with the obligation. It may be said, that Adam was originally naked, and that the prophet Isaiah went without any clothes for the space of three years, by special command; but the other prophets who were not under the same injunction, like other people, wore their cloaths; and our first parents, when once they had lost their innocence, were covered with skins, and that by their Creator. The Indians, therefore, that reject all covering, as well as those that use it for show, seem, according to the scriptures, to have departed from the Divine appointment, while many of the Asiatics, in shutting up their women, and keeping them covered in their veils, seem to have deviated as far on the contrary extreme, and thus to have shut up much of the sweets of society. The practice of eating human flesh, with the circumstances of cruelty that usually accompany it, need only to be named, to convince us of the evil: however, if we regard it in a more favourable point of view, it will perhaps better become us to suspend our judgment. If we figure to ourselves the situation of a vessel at sea, reduced by famine to the last extremity, and one of the crew become a corpse through real want of provision; in such a case, it should seem best to leave it to every man's own feeling, whether it should seem right to him to meet the approach of death, or prolong a life useful to his family or society, by feeding on the body of his ship-mate; and the conclusion he would come to at so awful a moment, might perhaps be exactly the reverse of what he imagined when ashore, stout and untried; perhaps he would turn with abhorrence from such a meal, sicken and die.

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SECTION III.

ABSTRACT of COOK'S VOYAGE.

A very short sketch of the last voyage of James Cook, may perhaps here be rather interesting, and may serve to convey a farther account of these people.

1. *North Passage to India.*] It had long been thought, if a passage could be discovered between the Atlantic and Pacific oceans on the north, the navigation to China, India, and the other distant parts of the world, would thus be much shortened, and that commerce would consequently benefit much by the event. It was imagined, that as the utmost bounds of Hudson's and Baffin's Bays were not yet known, a passage through these to the Pacific might possibly be obtained: it was thought also, that the communication between the two oceans, might possibly be open across the northern pole. Under these ideas, many adventurers both public and private, attempted the navigation; they generally found the way blocked up with the ice, and were obliged to return; some got so embarrassed in it, they found it difficult to get clear; and some there were that perished in the hardy attempt, and never returned.

In order to determine whether such a passage could be effected, the Resolution, Captain Cook, and Discovery, Captain Clarke, were equipped, with suitable stores, in a very plentiful way, and sent to the south sea; it was ordered, that they should there make any further discoveries in their power, distribute among the islands, for the benefit of the natives or future navigators, the variety of domestic animals our country affords, and which the King George, had munificently supplied; leave Omai at home, who had heretofore come with them from the island of Otaheite; and thence proceed to the high latitudes on the north, there to attempt the much desired passage to the Atlantic; and in case they should fail, return home the old way.

In the year 1776, a little after midsummer, they set sail from Plymouth, and on the coming on of our winter, we find them beginning the summer of the southern hemisphere, at the Cape of Good Hope. The whole year 77, within a few days, they spent south of the line, and visited successively New Holland, New Zealand, the Friendly and Society Isles, besides other detached islands.

2. *New Holland*] After leaving the Cape, and passing, or barely touching at some bleak and uninhabited isles, it was early in the year they arrived at the most southern part of New Holland; here they recruited their stock of wood and water, and cut some grass for their cattle, the country indeed affording little more for their refreshment; the simple wishes of the natives, however, seem but equal to the supply. The philosopher Diogenes, who lived in a tub, and in his zeal against luxury, threw away his dish, when he saw that a clown could

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take a drink at the brook in the hollow of his hand—had the cynic been here, he might have thought he abounded in luxury and superfluity. Of all the people who inhabit the world, these natives of New Holland are perhaps the most easily supported, they live without cloaths, without houses, without bread, or a supply of vegetables; they are without canoes, and unacquainted with the method of catching large fish; they derive a frugal subsistence from the shell-fish they can pick up from the shore; they lie down and take their repose on the grafs, or like the fauns of the ancients, take up their abode in hollow trees.

The English, on their arrival among these simple people, observed their manners to be mild, unsuspecting, and unreserved; they handed them bread, but this they threw away; they offered them fish, but this they refused; they presented them fowl, of this they ate, and signified they liked it; they shewed them iron, and what was surprising, they cared not for it, yet they had a sort of lances, but shewed no great skill in using them; they have also a method of hollowing out the trees, by cutting or gashing them out with stones; one side of the trunk they leave pretty strong; the cavity is large enough to let six or seven of them sit down in it, with a fire in the middle; and the tree thus excavated, is notwithstanding sufficiently supplied with verdure. Their seas abound with fish, their forests with fowl, but the quadrupeds are few. Some were so debased as to offer presents to the women in order to seduce them, but these they spurned from them with indignity. It will be well if their manners be much improved in the end, by the intended colonization of their country with delinquents.

44. *New Zealand.*] The adventurers after leaving a couple of pigs in the wood for the improvement of this land, proceeded on their voyage to the islands of New Zealand: here the scene was wonderfully changed, and the people seemed to have made considerable advances in the arts of life; they had contrived to build themselves stately canoes, though without the use of metals; and so clever were they in erecting their habitations on shore, that in the space of half an hour, they would both clear the ground, that was matted and embarrassed with shrubbery, and build on it a town, or cover it with their huts: they had a sort of regular fortifications to flee to, built on the tops of hills, or entrenched in the lower grounds: they practise a little tillage, and their nets for hauling the *seyne* are of vast extent, and the common property of a township or district. Their fondness for carving, and dexterity in that art, appeared as well in the curious tattooing of their faces, as the manner of ornamenting their canoes and different utensils or weapons: there is a certain etiquette or decorum of manners observed among them; they join their noses together by way of salute: they are kind and hospitable to travelling strangers: these people wear cloaths, and the women are distinguishable from the men in their manner of dress, their lower garments being always fast bound about them: yet here the most implacable ferocity was found among the men, and unchastity in the women, with the parents concurrence. The New Zealanders towards their enemies, are perhaps the fiercest and most desperate of all mortals; they give no quarter, and feed upon the slain. Inured from their infancy to the practice

practice of war, they seem habitually suspicious, and ever on the watch; they seldom lay down their arms, and then they take care they shall be within their reach, and ready for a snatch. As fighting forms a principal part of their employment, so also it appears to be their delight. They join together in the war-song, and animate each other in horrid concert; with muscular exertions, they distend their eye-lids, distort their features, put out their tongues to an enormous length, and stare most hideously; and the children are adepts in the manners of their fathers. It was these people, in a former voyage of Cook, that cut off the Adventure's boat's crew, and fed on their mangled bodies; and these are the people most nearly our antipodes. The animals of New Zealand are rats, and a kind of fox-dog. The country is hilly, and therefore not well adapted for agriculture. The forests are grand, stately, and luxuriant.

4. *Friendly and Society Isles.*] On the coming on of our spring, or the autumn of the southern hemisphere, the navigators departed from New Zealand, and proceeded northward to the Friendly and Society Isles; these they enriched with their presents of animals and various useful plants. In these parts they spent most of the remaining part of the year, mixing with the natives in their festivals, customs and ceremonies: here they met with kindness, generosity, and friendship, and lamented that the bloody practice of offering human sacrifices, should obtain among a people in other respects benevolent and humane: however if we except the custom of devouring human flesh, they too much answer the general description already given of the islanders. After completing their astronomical and nautic observations, and fixing Omai in a comfortable house, with his cattle about him, and his garden in a thriving way, at the latter end of the year they took their departure, proceeded towards the north, and crossed the line. The whole of the years 78 and 79, they spent in the Pacific, north of the equator.

5. *Sandwich Islands.*] Early in 78, they fell in with another cluster of islands, fertile and pleasant; these they named after the Earl of Sandwich. The people they found friendly like the generality of the islanders, and much the same in their manner of life; others had received our strangers by reciting songs in concert, these welcomed them by extending their arms. The men shewed the most tender affection to their families, relieving their wives in the tending of their children. They seemed most ingenious manufacturers of their cloth, equalling in their colouring the patterns of Europe and China; they excelled in vocal music, and were fond of pantomimical drollery, putting gourds over their heads by way of masques. They have a variety of other diversions among them, as a sort of chess, bowls, quoits, and the tossing and catching of a number of little balls in the air; but their greatest diversion seemed to be in the water, on a little bit of board, and in this they shewed surprizing address, agility, and courage. Their method was, when the sea was uncommon rough, and a prodigious surf was raised among the rocks, they went out with their piece of board, and watching the approach of the billows, they dived through them without being taken up by them and dashed against the shore; when they had passed the surf, and fixed themselves to their liking on their little board, they then watched the coming of a prodigious

prodigious swell, and artfully giving themselves up to it, were borne aloft, and carried on it to land; and in the midst of such a sight, when the English would be fearing their sudden destruction, they would dexterously evade the danger, by giving up their little carriage to be at once dashed in pieces against the rocks, to the astonishment of the sailors; the women would take their children in their arms and swim ashore from the ships, through tremendous billows; and on the oversetting of a canoe, even the four year old children would play a hundred little tricks in the water, till the vessel was righted.

6. *Western Shore of America.*] The adventurers soon departed from Sandwich Isles, and reached the western shore of America early in the spring. They explored this remote coast, unknown to Europeans, to a very high latitude, in search of a passage to Europe on the north east; here the natives were clad in skins, and sold their furs to the strangers for iron and trinkets; they offered them also for sale, human skulls, and hands not yet stripped of the flesh; they seemed sonder of disfiguring their bodies than even the New Zealanders; those had slit the ear, which is a cartilaginous substance, in such a way that it answered as a belt to stick a knife in. These American Indians slit the under lip in such a manner, they appeared to have two mouths. They had also holes bored through their cheeks, in which they placed shells or teeth, sticking out. They also cover themselves with masques, and go on all fours, in order to steal upon their game in the woods.

7. *Vicinity of Asia and America.*] The adventurers fell in with some Isles far to the north, where they met with some Russians, who had settled there for the sake of the fur trade; from these they received some information respecting those seas, a couple of letters to take to Kamtschatka, and then proceeded north till they found the continents of Asia and America within forty miles of each other. Having passed these freights, which lie close at the beginning of the frigid zone, they found a large sea, but blocked up and embarrassed with ice. After some fruitless efforts to make the passage on the north, and considering the summer was now almost spent, they returned to Owyhee, one of the Sandwich Isles.

8. *Owyhee, and Death of James Cook.*] Here the people well pleased with their return, received them with songs and shoutings of joy; they met them in their canoes, and crowded on board the vessels, swarming on the decks and rigging like bees, inasmuch, that the Discovery seemed to sink with their weight. Multitudes of women and boys who could not get canoes, came swimming in shoals round the vessels; and when they could not get on board, they kept playing the remainder of the day in the water. The most unreserved and active friendship seemed mutually to subsist between the natives and the visitants during their stay; and on the latter leaving the island, and intimating to the others they would never more return, their departure was accompanied with lamentation and tears. It happened that the weather came on somewhat stormy, and the foremast of the Resolution was sprung in the gale. This made it necessary for them to return to their former station; but how great was their surprize when they entered the bay, which before had been alive with the multitudes

multitudes of the people paddling about in the water! it now appeared one solitary scene. There was no canoe came out to meet them with songs and shouts to hail their return. This seemed unexplicable. It was found, however, that the bay had been tabooed or forbid; that their friend King Tereaboo had removed to another part of the country, and that the people had consequently departed from the coast. It should seem also, that the natives might be very much surprised at their sudden return, and might apprehend that they had broken their word, and had some evil design. Be this how it may, matters remained not long thus; a commerce was once more established between them; the coast, the bay, and the vessels, became crowded; their pigs and their plantains were brought down from the country as before; the King and his family did our people the honour of their visits; but the priests became their most particular friends: to secure the workmen in their necessary operations ashore, from the depredations of such as were disposed to pillage, they took up their abode with them, and stuck up their wands to taboo the place from the incursions of the natives; the chiefs and the people, however, were not all thus civil, but rather seemed to discover some marks of impatience and dislike. Some of them had the audacity and address to carry off the cutter; and when the commander at the observatory ashore, where the priests attended, came on board to complain of hostilities offered by some of the natives, he found the Captain, James Cooke, just loading his double-barrelled piece, and preparing a party to accompany him ashore, to demand the cutter to be returned. He had heretofore in the islands, on similar occasions, secured their chiefs, and detained them till restitution was made; and this way of procedure he had found easy, expeditious, and effectual. Intending the same conduct on the present occasion, the captain arrived at the house of Tereaboo, and requested that he would come on board. To this the old King made no objection. His two sons were not within, but had been sought for and sent before, and the father rose up and accompanied the Captain. The boats of the English had been stationed to guard the bay, and prevent any of the canoes from escaping, till the cutter should be brought back. In the mean time, the mother of the boys, observing the military appearance of the captain and his attendants, had taken the alarm; the fears of the woman soon spread among the multitude, and the chiefs would not suffer their King to proceed. The Captain seemed willing to forego his design for the present, rather than accomplish it with the spilling of blood. His little party seemed likely to be embarrassed by the multitude, and the officer proposed drawing up his men along the rocks, by the water's edge, that they might have an opportunity, if necessary, of using their arms: this was approved of, and done, and the Captain left alone. At this unfavourable juncture, an account arrived, that one of the chiefs was just killed by the boats of the English, which had fired at his canoe, and the people became outrageous, determined, and bold. One of the most hardy of them confronted the captain, and brandished his weapons in a menacing manner; in vain the captain desired him to desist; he at length fired upon him, but his mat was proof against the shot. The people, enraged, bore hard upon the captain, he shot one of the foremost; immediately followed a volley of stones, which

which was answered with the firing of the boats and marines; the captain still fronting them, retreated towards the boats; and while he thus continued to face his assailants, they seemed none of them to have the courage to fall on him; the boats were in the mean time keeping up a smart fire on the natives; but while the captain, at the water's edge, was calling out to them to desist, the Indians stabbed him behind; he fell into the water: their vengeance stopt not here; they set up a shout, dragged off his body, and cut it to pieces. The marines and their officer, when they had discharged their pieces, had not time to load again; the multitude rushed upon them with dismal yells, and killed four on the spot; the rest leaped into the water, and got off under the fire of the boats; one man, however, who was but a bad swimmer, continued struggling in the water, with his dismally fierce pursuers at his rear. The officer, lieutenant Phillips, could not enjoy his own security, while he saw his comrade in such perilous distress; though already wounded, he leaped out of the boat, and though he then received a blow on the head from a stone, which nearly sent him to the bottom, he snatched the poor fellow by the hair of his head, and dragged him off.

The rigging and astronomical apparatus at the village, on the other side of the bay, where the kind and friendly priests resided, being speedily got on board, the rest of the day was spent in endeavouring to bring the natives to a parley. They demanded the dead bodies, especially that of Cook, and threatened vengeance if they were not returned; but the people treated them with mockery and contempt.

Great were the military preparations on board, that followed these calamities; the English, apprehensive of an attack on the vessels under cover of the night, were all on the watch; they had their boats ready armed, and rowing at some distance round the vessels to prevent the cables from being cut, and they found the natives were equally busy; a prodigious number of fires were kindled upon the hills; and they had reason to believe, that at that very instant, they were offering up the slain as a sacrifice.

They remained the whole night undisturbed, except by the howlings and lamentations that were heard on the shore. The next morning they heard conchs blowing in the different parts of the coast, as the challenge to battle; and large parties were seen marching over the hills.

The English learned from the priests, who sent secret messages to them by night, that the flesh of their slain countrymen, together with the bones of the trunk had been burnt; that the remaining bones of the captain had been distributed among the chiefs, those of the others had been given to the multitude. They kept up the demand for the remains of their late commander, and continued to make the necessary preparation for sea. The priests remained their unalienable friends, and others kept up their hostilities and insults, till at last they made them feel some of the weight of their resentment. The men had all along shewn themselves prompt to revenge the death of their much lamented commander, and when the natives still continued to harass and annoy them at their taking in of the water, they at length had leave given them to set fire to some of their houses; they were but
men,

men, and susceptible of sudden passion; they killed several of the people indiscriminately, they made a general conflagration; and the houses and the goods of the kind priests were consumed, and the coast was filled with groans, howling, and lamentation. Among the number that were killed, the English had to lament the loss of many of their good friends; and many of the natives bewailed in tears the death of the captain, as well as that of their own countrymen.

When the Indians had been made to feel, that the forbearance of the English had not proceeded from debility or fear, they at length laid aside their animosity, and became once more their friends. The remains of the poor captain were gathered together, and brought on board the vessel; they were committed to the deep with the usual solemnity, and no doubt with aching hearts, though with military parade. Provisions were again brought down as before; and at last on the adventurers taking their departure, their farewells were received with every mark of affection and good will.

9. *Kamtschatka, the Return.*] It was in spring they departed from the Sandwich Isles, once more to attempt a passage to Europe on the north; they proceeded to Kamtschatka, a country which forms the eastern coast of Asia, far to the north. This part of the world, though so extremely remote from the nations of Europe, acknowledges the arbitrary sceptre of the Rus; here in a land of ice and of snows, of bears and of wolves, and where the natives adopt the aukward gestures of the bears, in their merriments and dancings; and where they acknowledge them as their preceptors in surgery and physick, having observed and adopted the herbs they have recourse to when languid or wounded; here they experienced politeness and hospitality. After spending some years in solitary seas, and among nations of Indians, even the infant advances that were made in arts and refinement, in this dreary land, must have given it an air of Europe, and revived the spirits of the sailors. On this bleak coast their eyes were first fastened, after leaving the isles, with the view of a light-house; it stands on the bluff head, at the entrance of Awatska Bay, and is lighted when Russian vessels are expected on the coast, other ships scarcely ever appearing on those solitary seas. On their gaining the bay, and coming to an anchor, they examined every corner with their glasses, in search of the St. Peter and Paul's town, a place they conceived to be of some strength and consideration. At length they discovered a few miserable log-houses, and some conical huts, raised on poles, amounting in all to about thirty; which from their situation, notwithstanding all the respect they wished to entertain for a Russian Ostrog, they were under a necessity of concluding to be Petropaulowskoi. They could not for a long time perceive any sign of a living creature in the place. The next day, however, four of our people being set on the ice to go to the town, after observing some men hurrying backward and forward, they saw one of the inhabitants coming down on a sledge, drawn by dogs; he gazed a while at the strangers, and then set off back again. Another driver came down in like manner, and called out to them; they held up the letters they had received the preceding summer from the Russian fur-traders, addressed to the commander at Petropaulowskoi, and the governor of Kamtschatka; upon this the driver turned about, and set off back again

again in full speed : a guard of thirty soldiers then met them on the ice, and these they accompanied to the Ostrog, where they were kindly entertained, when once they had made them understand they had not come as enemies. On their leaving the village, each was accommodated with a sledge, dogs, and driver; one was allotted also to carry the two boat hooks they had brought with them, at which the sailors were highly diverted. At this place they got a supply of cattle and flour, and experienced extraordinary kindness from the people, especially from the governor, the major Behm; considering the service they were engaged in, as of general advantage to mankind, he thought that in every country they were entitled to the privileges of citizens, and would not receive pay for the articles supplied. "I cannot," says he, "forget my mistress's character, or my own honour, so much, as to barter for the performance of a duty: besides, he remarked, that the Kamtschatdales were but just emerging from a state of barbarity; that they looked up to the Russians as their patterns in every thing, and he hoped that in future they might look upon it as their duty, to assist strangers to the utmost of their power, and believe that such was the universal practice of civilized nations. The adventurers after leaving this hospitable port, proceeded northward, and passed the streight between Asia and America. After reaching about as far as they had done the preceding year, and encountering many difficulties and dangers from the ice, which they found extended from continent to continent, and effectually prevented them from effecting the passage, to the unspeakable joy of the whole company, the signal was made to return.

They were now heartsick of the hardships, the dangers, and the anxieties, to which they had been continually exposed, and for which their reward had been only disappointment; they now saw the end of their outgoings, and every future step as bringing them nearer home; and though they had a difficult and tedious voyage still before them, the sudden joy on this occasion, that brightened the countenance of every individual, was perhaps greater than they would have experienced on a view of their own native shores, after long looking out for and expecting the land. Our navigators now returned to Kamtschatka, where they again met with a kind and friendly reception, recruited their naval stores, and repaired the damages done to the ships; here also they interred the remains of the captain, Clarke, who had been on the decline from the time of his leaving England, had borne his sufferings with great patience and resignation, and died a short time before their return to this port. From hence, taking their departure to known lands, and frequented seas, they coasted along the island of Japan, and met with two of the craft of that nation, but declined approaching very near them, for fear of needlessly intimidating them, especially as they expected they might have an opportunity of an intercourse with the natives; in this however they afterwards failed, as they never got ashore at all, but proceeded on to China, where they landed at Canton in the latter end of 1779: from this they proceeded to the Cape of Good Hope; and from thence to Great Britain, where they arrived in the latter end of summer, 1780, after an absence of four years. It is remarkable, that in the whole of this tedious voyage, wherein they visited almost, or altogether,

altogether, every habitable climate of the earth, there were but five that died of sickness, three of whom were ill before they left England; and it is equally remarkable, that the two ships were scarcely ever a day without a sight of each other, during all that time.

10. *Observations.*] We may now take our leave of this well conducted navigation, by observing, that this very voyage, in accounting for the peopling of the remote parts of the world, may serve the most incredulous, as a cord, to bind together all the nations of the earth, into one great family, descended from one common stock. It had long been wondered how America came to be peopled; and still more how the widely diffused islands in the great south sea were found stocked with inhabitants.

Our navigators found Asia and America very near to each other, in a high but habitable latitude: they learned also, that when the intervening sea was open, it was crossed with canoes; when frozen, with sledges drawn by dogs. This solves the wonder respecting the Americans; the extreme distance of the south sea islands from the continent, and the smallness of the vessels which the natives were capable of constructing and navigating, seemed incompatible with each other; it was thought that canoes could never have brought them through so immensely distant a voyage; late discoveries, however, shew, that the islands though generally very remote from the continents, yet they are not all so; they are very numerous, and widely diffused, in some parts in clusters, in others in detached isles; the nearest distance, therefore, from land to land, is not so great as was at first imagined; besides, there may be hundreds of them yet undiscovered by the Europeans, which may serve as links, to bring nearer together those which may appear to us the most distant; and, that even canoes may sometimes go a great distance by sea; and that therefore the islands may in this way have been peopled from the Continent is clear, from an incident that happened during this voyage. At an island two hundred leagues distant from Otaheite, Omai, to his great surprise, met with some of his countrymen. It appeared that about twelve years before this, a number of them had been crossing in a canoe from one of the Society Isles to another, but had been blown off by adverse winds; after enduring great hardship, and most of the people dying, they were at last cast upon this island, whence they knew not how to return. The similitude between the language and manners here, and those of their own country were so exact, they were soon naturalized to this place, and they had now become so attached to it, having formed new connections here, that when Omai proposed getting them brought back to their native home, they declined the offer.

To conclude the sketch of the islands in the South Sea, there is a great similitude prevails in the manners of them all, however remote from each other, and their language is generally a dialect of the Malayan Tongue. So that India appears to have furnished the South Sea Islands with inhabitants, as Tartary on the north, has peopled America.

SECTION IV.

ASIA.

As in this prospect of the earth, we have not to wait the delays of the traveller, or the disappointments of the mariner; but, fleetier than the wind, we may skim along the convexity of the globe, and view, in imagination the varied scene, which it has cost them hardships and pains to descry. Taking our departure from the islands of the Pacific, we may rise on the wings of the morning, and behold the eastern shores of Asia with the first dawning of the day.

1. *Tartary.*] The history of Asia affords an extensive and varied picture of climates and soils, of manners and men, of living creatures and natural production. The nations who first receive the light of the morning, are the Tartars on the north east; and in succession the Japanese, Chinese, the natives of India, the Persians and Arabians.

The Scythians were celebrated in antiquity, for being a hardy race of people, living in tents and leading a roving life; their descendants, the Tartars, answer the same description to this very day. In bodies of some thousands, with their families, their cattle, and all they possess, they wander about in the vast solitudes of the Asiatic Continent, from the confines of Europe to the great Pacific Ocean. On meeting with a situation fertile and pleasant, they pitch their tents, and continue in the place till the grass is consumed, when they again set forward in search of another inviting spot. Their principal food is horse flesh and cheese, or dried curd made up in little balls, which they crumble into water, and then drink or sip it up. Their jackets are made of deer skins with the fur outwards. Their chief employment from their infancy, is the management of their horses, hunting and the tending of their flocks, few arts being cultivated, except the making of arms; and, in the use of these and in riding, they shew uncommon address and agility, cleaving a pole at a considerable distance, with an arrow, in full gallop. Hostilities often happen between the different hordes and their chiefs, and mark the life of the Tartar as a state of continual warfare. If he perceives a track, or hears a sound as he crosses the desert, he is all upon the watch, and expects that a foe or booty is at hand, for robbery they account conquest, yet are remarkably hospitable to their friends, and likewise to strangers who put themselves under their protection. Their filial affection is very great, yet if the parent become infirm by age, or be seized with an incurable disease, they build him a small hut, near some river, into which they put him with a quantity of provisions, and then leave him to die, alleging, that they have done him a great office in sending him to a better place. Their women are remarkable for their modesty and fidelity, adultery being a crime scarcely ever heard of among

among them, yet they are to be met with in the seraglios of Turkey and Persia, having been bought when children from their unnatural parents.

The Tartars seem generally to profess deism or idolatry, and some are so superstitiously attached to certain forms in their whiskers, they declare enmity towards others, as not observing the orthodox cut. A people however so widely dispersed over a tract of country, reaching from Persia and India on the south, to the regions of the pole; and comprehending in itself a variety of climates; so uncollected as they are, and so mixed on their extreme confines, with nations of very different manners; from their different situations they naturally deviate from the general description. Thus, far to the north they dig subterraneous habitations, to screen themselves from the cold and severity of winter; and their name Samoiedes, signifies men eaters; while on the south, particularly at Astracan, they practise something of agriculture, manufacture and commerce: they also, accordingly as they border on or commix with the Russians, the Turks, Persians, Indians or Chinese, profess Christianity, or the doctrines of Mahomet, Zoroaster or Brumma, Fohi, Confucius or Li Laokun.

2. *Southern Nations.*] The numerous nations on the southern parts of Asia, from the islands of Japan, to the river Euphrates, and Mediterranean Sea, are like the Europeans, advanced in agriculture, commerce, arts and manufactures; but the profession of idolatry still prevails among them; and in Persia and Turkey, the doctrines of Mahomet. The Europeans are to be met with here as in other commercial parts of the world, especially in India and the adjacent islands; where it is well known they have made considerable settlements. The Chinese, but more especially the Japanese, are too jealous of their machinations, to allow them much footing in, or knowledge of, their empire.

3. *Arabs.*] The different tribes of Arabs, answer both the descriptions given of the other Asiatics; some roving like the Tartars, others living in towns. In all these countries, and wherever the doctrines of the Alcoran prevail, the happiness of the marriage unity is banished by polygamy.

The Arabians are Mahometans; some of them however still continue Pagans. The wandering Arabs subsist principally by robbery, on their fleet but docile coursers, which seem to understand the voice of their masters, and wait at the door of their tents all day long, fully equipped and ready for mounting; they traverse the deserts, and hover round the caravans to plunder the merchants, and the Mussulmans, on their pilgrimage to the tomb of Mahomet, at Mecca. Some think these the descendants of Ishmael, and in them fulfilled the prophecy to Hagar. "And he will be a wild man; his hand against every man, and every man's hand against him: and he shall dwell in the presence of his brethren." When the children of Israel were brought out of Egypt, and through the Red Sea, which was divided, and the waters made to stand as an heap; forty years long they were miraculously supported in this wilderness, where the rocks were cleft; streams also were brought out of the rock, and waters caused to run down like rivers; and manna was rained down upon them to eat, and the corn of heaven given them. The offspring of Abraham

Abraham was established in Canaan, and the heathens driven out; but the Turks are now in possession of Palestine, and the tribes of the sons of Jacob, are scattered to every quarter of the globe, and the most of them having lost their name, and the remembrance of their origin; themselves and their manners seem to have mixed with the nations of the east, and their idolatrous rites.

S E C T I O N V.

AFRICA.

If continuing our imaginary tour round the earth, we pass the Isthmus of Suez, to the Continent of Africa; the route which the merchants of old pursued with little Joseph, the son of the Patriarch Jacob, whom they bought from his envious brethren, and sold to Potiphar, captain of Pharaoh's guard; the track also which the carpenter, Joseph, afterwards followed; when being warned in a dream, he took the young child and his mother, and fled by night, from the rage of king Herod, and the land of Judea; on our leaving the skirts of the wilderness which form the Isthmus, the plains of Egypt rise on the view.

1. *Egypt. Barbary.*] The Egyptians and the Moors, along the northern coasts of Africa, from the shores of the Red Sea to those of the Atlantic Ocean, are acquainted with arts and manufactures. In antiquity, the Egyptians were famous for science, the Carthaginians for commerce and navigation; and the ruins of their former magnificence astonish to this day; but the reveries of astrology, is the science of the modern Egyptians, and piracy the employment of the marine of the Moors. Christian churches were also gathered in this country at an early period, as well as in Asia, and the southern parts of Europe; but here, as in Asia, the doctrines of Mohammed have superceded the profession of christianity. In the other parts of Africa they seem very generally in the practice of idolatry; but the inner parts of this country are but little known to Europeans; they all appear however almost wholly ignorant of sciences and arts; and their chief barter are consequently natural productions; as gums, bees wax, animals, elephants teeth, gold dust, &c.

2. *Ethiopia.*] South of Egypt lies Ethiopia, a tract extending in its largest acceptation, to the Cape of Good Hope; its borders on the west, as undetermined as those of ancient Scythia; and in its different countries of Nubia, Abyssinia, Zanguebar, Caffraria, Lower Guinea, &c. &c. including, perhaps, a greater variety of manners and men than Tartary itself. The jealousy of the Abyssinians, and the prohibition of the Turks, who claim their borders on the Red Sea, and engross their traffick of gold, emeralds, horses, rice, &c. for the manufactures of the loom, prevent us from knowing much of themselves, we have learnt however, that their profession is a mixture of Christianity

anity and Judaism. South of this, in Monoemugi, it is said there are Cannibals who offer up human sacrifices, sparing none who are hardy enough to venture through their country. All along the coast of Zanguebar, on the south east side of Africa, the Portuguese have considerable settlements; and in some parts have commixed with the natives, and prevailed on them to adopt the European mode of dress. At the Cape or most southern part of the continent we meet with the Dutch; these cannot boast a similar acquisition. The Hottentots are so entirely attached to liberty, and their own manner of life, that they have not yet any of them become converts to European customs; like the Tartars, they move about in companies, with their huts; like them expose their infirm and aged parents to perish; the same severities they use to infants that are born twins, and sometimes to female children. They besmear their bodies with grease and soot, and put heaps of it on their heads which, when clotted and hard, forms a filthy sort of cap; they wear mantles of sheeps skin with the wool outwards; and wrap thongs of half dried skins round their legs, which makes them walk like a trooper in jack boots; they have particular dances when the moon is new or at full, which looks like idolatry. They punish murder, adultery and robbery with death.

3. *Negroland and Guinea.*] Along the western coast of Africa, also, on the shores of Negroland and Guinea, the Europeans have many settlements: hence they bring gold dust, elephants teeth, gums and drugs; their traffic stops not here; alas, they make even man an article of commerce.

4. *Enslavement of the Africans.*] Parents and children, partners and friends, and every individual. How would you like to be torn from your every nearest and most tender connection, and from your dear native home; and carried into bondage ye know not whither; by people whom ye never injured; and with whom ye have no acquaintance? yet such is annually the lot of thousands, and tens of thousands, of the poor natives of Africa; and it is a lamentable truth, that their oppressors are those who make profession of the christian name, and that the legislature of our nation encourage this business. It is to be hoped, in charity to the king and his counsellors, that they cannot be fully sensible of the sufferings of the poor oppressed negroes; for if they were, surely they could not find peace of mind till they put a stop to such iniquitous proceeding, the very relations of which might make the hearts of the peaceful melt with pity, and those of well-meaning zealots, burn with indignation! While we live under a government, the mildness of which allows us thus with impunity, to speak of its imperfections; and plead without restraint, the cause of the oppressed; an act which the religious, in good will to mankind, have sometimes found it their duty to perform in opposition to human laws, and through much persecution and sufferings unto death: while thus easy and free is the lot we enjoy; and while it is a maxim in the laws of our land, that its air is too pure for a slave to breathe; or, in other terms, that the instant a slave sets his foot down amongst us, whatever may have been his condition before, he that instant becomes free: how extremely unjust and inconsistent must it appear, that countries abroad, which own no other government, should be under so very different a predicament; that men are there bought and sold like

like the beasts of the field ! and how much of selfishness and ostentation must we suspect in the boasts of the English, that their laws are thus free, and declarative of the natural rights of mankind, while the very same laws hold thousands in a bondage worse than that of Pharaoh, who, with his numerous host, was swallowed up in the Red Sea, for hardness of heart.

It is said by some of the traffickers in the human species, that the negroes are brought from a wretched cruel country ; and, that they profit much by their being transported to the more humane European settlements. Guinea is not free from the calamities of human life, any more than other countries ; but alas ! how has the catalogue of these been swelled, by their intercourse with white people ; and however diligently these may propagate reports to excuse their traffick, and palliate their crimes ; whatever they may persuade themselves in justification of this shocking trade, the facts related by humane observers, and even by some of themselves, might seem sufficient to pierce the most unrelenting breasts ; but the love of gain has steeled the hearts of these wretched people against the impressions of pity, and blinded their eyes that they cannot see the beauty of justice, mercy and truth ; and their history affords perhaps, the most melancholy picture of the depravity of mankind, to be met with this day on the face of the earth. Happy the man ! who, seeing what lengths these poor people have got to, by giving way to avarice and the violence of their passions, takes warning against the evils of pride and selfishness. Happy he, who, feeling the infirmities of human nature, learns to pity this most lamentable description of people, whose situation is more deplorable, infinitely more so, than that of the poor innocent negroes, who endure their oppression ; who look forward with hope, to the awful period which delivers them from their bondage, and meet it with joy and smiles on their countenances. An account of the black people in their native country ; the manner of their capture ; their treatment on the voyage, and afterwards in slavery ; may piteously shew what cause there is given for the preceding reflections and remarks.

" Which way soever I turned my eyes on this pleasant spot," says M. Adanson, in his account of Goree and Senegal, " I beheld a perfect image of human nature : an agreeable solitude bounded on every side by charming landscapes ; the rural situation of cottages in the midst of trees ; the ease and indolence of the negroes, reclined under the shade of their spreading foliage ; the simplicity of their dress and manners ; the whole revived in my mind the idea of our first parents, and I seemed to contemplate the world in its primitive state : they are, generally speaking, very good-natured, sociable and obliging." This description appears equally applicable to the other parts of the country.

Guinea seems generally very populous and well cultivated, in some parts looking like an entire garden, interspersed with villages and towns ; wild fowl and poultry are very numerous ; their meadows feed vast herds of large and small cattle ; the low grounds, in some places, divided by small canals, are sowed with rice ; the higher land is planted with Indian corn, millet and pease of different sorts ; they are plentifully supplied with potatoes and fruit. The natives are generally

rally a good sort of people; honest in their dealings; friendly to strangers; of a mild conversation; affable, and easy to be overcome with reason. The more discerning of them account it their greatest unhappiness, that they were ever visited by the Europeans, the Christians having introduced the traffick of slaves, and banished that peace from amongst them they formerly lived in.

The calamities to which these poor people are exposed, in every stage of this iniquitous traffic, seems to be unparalleled in the history of any other nation, whether ancient or modern. Iron and other manufactures of Europe, are the articles given in exchange for the poor slaves; for these, the corrupted Africans will practise every violence and cruelty on their countrymen. If a ship come in sight, it is considered as a sufficient motive for a war, and as a signal for an instantaneous commencement of hostilities. They fall on the neighbouring nations for the purpose of making prisoners or slaves, and in the tumult of war, their rage often predominates even over motives of avarice; in the height of their fury they massacre their opponents; if a king fails in making prisoners of his enemies, he surrounds, with his army, one of the towns of his own subjects, sets fire to the houses, and picks up the people as they attempt to escape from the flames. These evils are not merely confined to the coasts; the negroe factors go many hundreds of miles up the country with goods, bought from the Europeans, where markets of men, are kept in the same manner as those of beasts with us. When the poor slaves, such as survive the fatigues and hardships of the journey, are driven down to the sea shore, they are stripped naked, and strictly examined by the European surgeons, both men and women, without the least distinction or modesty; those which are approved as good, are marked with a red hot iron with the ship's mark, after which they are put on board the vessels, the men being shackled with irons, two and two together. Besides these methods of procuring slaves in multitudes, the factors, or free negroes as they are termed, who live on the coast, and know how to speak the European languages, are furnished with arms and ammunition; and thus equipped, they sally forth into the country and kidnap numbers of children of both sexes, which they find on the roads or in the fields, where their parents keep them all day to watch the corn; for those whom they meet with strong and grown up, they look for a clog of wood, and fasten them to it by the wrists with staples, and thus bring them to the vessels labouring under the load. In vain the parents bewail the loss of their offspring; or, in vain the tender family at home in the village, expect the coming of their sire, with the approach of the night! the shed must no more be enlivened with their presence, nor their labours be alleviated by their company in the fields. So enormous are the practices ye have stirred up, ye degenerate sons of Europe, among these well-meaning people, and so bitter the afflictions ye have strewed round their dwellings!

Leaving these regions of sorrow and desolation, we may expect the scene to brighten, on contemplating the farther lot of the captives: but alas! their sufferings seem only beginning. Under the weight of affliction, some being snatched from all that was dear to them upon earth, and under the dreadful apprehension of an unknown perpetual

slavery; pent up within the narrow confines of a vessel, sometimes six or seven hundred together, they are often reduced to a state of desperation, wherein many have leaped into the sea, and kept themselves under water, till they were drowned; others have starved themselves to death; for the prevention whereof, some masters of vessels have cut off the legs and arms of a number of these desperate poor creatures, to terrify the rest: great numbers have also frequently been killed, and some deliberately put to death under the greatest torture, when they have attempted to rise, in order to free themselves from their present misery, and the slavery designed them.*

It may be said that they are plentifully supplied with food on the voyage, and that every precaution is taken that can be conducive to their health; the sailors it is true, often complain that they themselves are sadly pinched; some having been inveigled on board, and then detained against their wills, they are obliged to make it out as well as they can by getting in with the negroes, who are well provided for; the captains wish, say the crew, to bring the slaves in good order to market, and to make us so tired of their usage that we may desert them in the West Indies, and so lose our wages; thus do cruelty and fraud mark the manners and habits of these wretched people in every stage of this inhuman business.

That their care of the negroes proceeds not from good-will, may lamentably appear from their inhuman treatment of them, sometimes when they are quiet and not attempting an escape; if there should be any necessity, from tempestuous weather, for lightening the ship; or, if it be presumed on the voyage, that the provisions will fall short before the voyage can be made, they are many of them thrown overboard; indeed, so lightly have their lives been esteemed, that they have been taken away upon a speculation, that it would be more profitable to drown them, than to run the hazard of their dying. In 1781, one hundred and twenty-two were thrown overboard, from one vessel; ten others, who were brought upon the deck for the same purpose, did not wait to be handcuffed, but leaped into the sea, and shared

* A master of a vessel, who brought a cargo of slaves to the island of Barbadoes, being asked what had been the success of his voyage? he answered, "that he had found it a difficult matter to set the negroes a fighting with each other, in order to procure the number he wanted, but that when he had obtained this end, and had got his vessel filled with slaves, a new difficulty arose, from their refusal to take food; those desperate creatures chusing rather to die with hunger, than to be carried from their native country." Upon a farther enquiry, by what means he had prevailed upon them to forego this desperate resolution? he answered, "that he obliged all the negroes to come upon deck, where they persisting in their resolution of not taking food, he caused the sailors to lay hold upon one of the most obstinate, and chop him into small pieces, forcing some of the others to eat a part of the mangled body; withal swearing to the survivors, that he would use them all one after the other, in the same manner, if they did not consent to eat." This horrid execution he applauded as a good act, it having had the desired effect, in bringing them to take food. A similar case is mentioned in Astley's collection of voyages, of one vessel, in which several of the men slaves, and a woman slave had attempted to rise, in order to recover their liberty; some of whom the master, of his own authority, sentenced to a cruel death; making them first eat the heart and liver of one of those he killed. The woman he hoisted by the thumbs, whipped and slashed with knives, before the other slaves, till she died.

shared the fate of their companions, yet the people in the ship had not been put upon short allowance; but the wretched captain made this excuse on board, for his conduct. "That if the slaves, who were then sickly, had died a natural death, the loss would have been the owners; but, as they were all thrown alive into the sea, it would fall upon the underwriters." Thus, ye insurers, are ye liable to be defrauded, by meddling in this iniquitous traffick; and thus do ye yourselves, ye inconsiderate men, defraud the negroes of their lives.

The preceding fact was proved in your law-suit with the owners, at Guildhall; the horrid deed is recorded in the annals of that court; where, perhaps more enlightened generations to come, may look back with horror, on the rude practices of their predecessors. Hundreds can come forward and say, that they heard the melancholy evidence with tears; though the perpetrators of the murders, escaped the punishment due to their crimes.

If the ship should arrive safe at its destined port, a circumstance which does not always happen, (for some have been blown up, and many lost) the wretched Africans are again exposed naked, without any distinction of sexes, to the brutal examination of their purchasers. In this melancholy scene, mothers are seen hanging over their daughters, bedewing their naked breasts with tears; and daughters clinging to their parents, not knowing what new stage of distress must follow their separation, or, if ever they shall meet again; and here what sympathy, what commiseration are they to expect? why indeed, if they will not separate as readily as their owners think proper, the whipper is called for, and the lash exercised upon their naked bodies, till obliged to part. Having been brought from a country where a very small labour of tillage supplied them abundantly with the necessities of life; the hardships that are imposed on them are often more than they can bear: under these, together with change of climate, they droop and die in very great numbers; those that survive the first two years, are said to be seasoned, or fitted to be put into a gang to undergo the labours and hardships of slavery. When thousands have been slaughtered on the African Continent through this iniquitous traffick; it is estimated that 100,000 are notwithstanding annually brought off from their native country; two thirds of these by the ships of the English; that fifty thousand are destroyed on the passage, and in the seasoning: Woful havock of the sons of men! Fifty thousand then annually survive, to work and people the plantations. How must these and their offspring, banish solitude from the silent tracts that have been laid waste by the swords of the Europeans, and supply inhabitants in abundance, to the islands that have lost even the remembrance of their native Indians? as the same climate in a few generations lightens the blackness of their complexions, and throws a shade of darkness over that of the Europeans; how must both by degrees, be assimilated in their persons; and, how must they at last imperceptibly commix with each other, and the unbecoming distinction of master and slave be quite worn out! We may amuse ourselves with such reflections as these, and wish to see this aggravated evil in the most favourable point of view. But alas! the catalogue of facts that stares us in the face obliges us to forego much of the pleasure we might

derive from such flattering expectations. These desirable effects but very partially take place; the slaves, continually exposed to the severity of the climate, retain much of their native hue, from generation to generation; while the planters, screening themselves from the heat of the sun, and living at their ease, still retain something of their light complexion; and the negroes, instead of encreasing, in their slavery, and peopling the solitary wastes the Europeans have made, are worn down by the rigour of the labour imposed on them, and by the accumulated hardships they are constantly exposed to, their days are shortened, and their generations become extinct; insomuch that in one of the western colonies of the Europeans, six hundred and fifty thousand slaves were imported within an hundred years; at the expiration of which time, their whole posterity were found to amount to one hundred and forty thousand. There is perhaps no part of the earth where beasts of burden are so much oppressed as the negroes are in the sugar plantations. They are sixteen hours, including the two intervals at meals, in the service of their cruel masters; and the shouts of their drivers, and the cracks of the whip on their naked bodies, which cuts out small pieces of flesh at almost every stroke, are heard all day long in the fields; when wearied with this, they are employed three hours more in making the necessary provision for themselves, five only remain for sleep, and their day is finished. During the time of crop, which lasts many months, they are often obliged to work all night in the boiling-houses or mills. The whole gang, as the planter calls his collection of slaves, is divided into two or three bodies, and each division takes its nights by turns, in the works: this is a dreadful encroachment upon their time of rest. Those who can keep their eyes open during their nightly labour, and are willing to resist the drowsiness that is continually coming upon them, are presently worn out; while some of those who are overcome, and who feed the mill between asleep and awake, suffer, for thus obeying the calls of nature, by the loss of a limb, an hand or an arm being frequently ground off.

To support a life of such unparalleled drudgery, the master allows to the slave for provisions, clothing, medicines, when sick, &c. no more than thirty shillings per annum upon an average, and a small spot of ground, which he gives him leave to cultivate on the day called Sunday: pressed by hunger, he eats the vegetables which this produces before they are ripe, and contracts disease. His own spot is perhaps exhausted, and he has the same appetite to be satisfied as before; perhaps he creeps out clandestinely by night, from his hut, to go in search of food, into his master's or some neighbouring plantation; the watchman, to save himself from chastisement, is vigilant to detect him, and must punish him for an example, not with a stick, nor with a whip, but with a cutlass. Thus it happens that these unhappy slaves, if they are taken, are either sent away mangled in a barbarous manner, or are killed on the spot. Perhaps the poor negro, in the midst of his labours and pressed hard by famine, is found eating the cane which his own hands have planted: this is sure to be followed by the whip; and so unmercifully has it been applied on such an occasion, as to have been the cause, in wet weather, of the sufferer's death. Knives, or any thing that passion could seize, have been

been snatched in the fit of phrezy, and used as instruments of punishment. In their slavery ears have been slit, eyes have been beaten out, and bones have been broken. And so frequently has this been the case, that it has been a matter of constant lamentation with disinterested persons, who, out of curiosity have attended the markets to which these unhappy people weekly resort; that they have not been able to turn their eyes on any group of them whatever, but they have beheld these inhuman marks of passion, despotism, and caprice.

On their being first set down in the plantations, after all the cruelty they have undergone in being forced from their native country, hardly one in a hundred have scars to shew they were prisoners of war; they are generally such as have been kidnapped, or sold by their tyrants after the destruction of a village. The slaves are men, they wish to be free; they fly sometimes to the recesses of the mountains, where they choose rather to live upon any thing that the soil affords, nay the very soil itself, than to return. It sometimes happens, that the manager of a mountain plantation, falls in with one of these; he immediately seizes him and threatens to carry him to his former master, unless he will consent to live on the mountain and cultivate his ground. When his plantation is put in order, he carries him home, abandons him to all the suggestions of despotic rage, and accepts a reward for his honesty. The unhappy wretch is chained, scourged, and tortured; and all this, because he obeyed the dictates of nature, and wanted to be free; if he has been absent six months he falls a victim to impious law; he is considered as a criminal against the state; he is tried and condemned, by two or three justices of the peace, and without the intervention of a jury: the marshal, an officer answering to our sheriff, superintends his execution; and the master receives money, as the price of the slave, from the public treasury. Perhaps a reward has been offered for him dead or alive; in that case he has not so much time allowed him; his merciless pursuers overtake and shoot him; they cut off his head, and exultingly bear it away still reeking with blood; this they produce as the proof *required by law*, to entitle them to the reward. The Africans are men, they have sometimes ventured to resent their abuses, and resist their opposers: What has been the consequence? they have been murdered at the direction of their masters; for in those rueful countries the life of a negroe is only valued at a price that would scarcely purchase a horse. The master has the power of murdering his slave, if he pays a moderate fine; and the murder must be attended with uncommon circumstances of horror, if it even produces an enquiry. Many are the advocates that have of late appeared, both on this and the other side of the sea, to plead the cause of these poor oppressed people; and they have ably confuted the arguments of the oppressors, however plausible they might appear; they have shewn, that it is in vain the oppressors pretend them to be the offspring of Cain, who was cursed from the earth, because of his brother's blood. All the people on earth since the flood, have been the descendants of Noah. But if this subterfuge of the oppressors were true, it would by no means justify their conduct. Cain was to be a fugitive and a vagabond, not a slave on the earth; and whosoever slew Cain, vengeance was

was to be taken on him seven-fold. When Noah awoke from his wine and knew what his younger son had done unto him, he said, "Curled be Canaan, a servant of servants shall he be unto his brethren." The oppressors lay hold of this, as a plea for their conduct. The advocates shew, from history, that the other sons of Ham, peopled the Continent of Africa; that Canaan abode in Palestine, the Canaanites, many of them fell by the swords of the Israelites; some, as the Gibeonites, were made hewers of wood, and drawers of water; but because of Saul and his bloody house, who slew the Gibeonites, there was a famine three years, in the days of David, year after year. Those of the Canaanites that were driven out of the land, seem to have settled along the coasts of the Mediterranean sea; they were the most celebrated traders and navigators in antiquity, under the name of Phenicians; some think they reached as far as Britain, and helped to give birth to the nations of Europe, who pretend to fulfil the prophecy of Noah, in oppressing the Africans. The negroes, say their oppressors, are an inferior link in the chain of human beings, and intended for slavery. It may seem superfluous to disinterested people to contradict so absurd a position; it may be remarked however, the descendants of the Portuguese in Zanguebar have become such a people, their heads having grown woolly and their complexions black, while those of the negroes in the northern parts of America, and also in Europe, have got long hair and fair complexions. But it is well known that the negroes have capacities like other men; that they become expert workmen, and fine writers both in prose and verse, when they have an opportunity of learning.

The following little extract from the writings of an African girl, may perhaps serve to shew, that neither genius nor yet devotion is peculiar to the people of white complexion:

From an HYMN to the MORNING.

Fill'd with the praise of him who gives the light,
And draws the sable curtains of the night,
Let placid slumbers sooth each weary mind
At morn to wake more heavenly and refin'd;
So shall the labours of the day begin,
More pure and guarded from the snares of sin. &c.

The authoress of these lines was Phillis Wheatley, negroe slave to John Wheatley, of Boston in New England. She was kidnapped when only eight years old, and in the year 1761, was transported to America, where she was sold with other slaves; she had no school education there, but receiving some little instruction from the family where she lived, she obtained such a knowledge of the English language, within sixteen months from the time of her arrival, as to be able to speak and read it to the astonishment of those who heard her. She soon afterwards learned to write, and, having a great inclination to learn the Latin tongue, she was indulged by her master, and made a progress. Her poetical works were published in the year 1773, when she was about twenty years of age. They contain thirty-eight pieces on different subjects. While the history of this young woman shews that the negroes are not a race of beings inferior

rior to white people, it affords us the pleasure also of observing, that they do not always fall into the hands of inhuman tyrants; probably many have been in the practice of purchasing these poor, forlorn, expatriated people, from motives of benevolence, or to prevent their falling into the hands of cruel taskmasters.

Since the late devastations of the sword on the American Continent, the lot of the negroes appears in some places to be growing somewhat more tolerable. In America several members of the churches of Rome, of England, of Scotland, of Independents, and others, have liberated their slaves, convinced that it is wrong to rob innocent people of their liberty; the Society of Friends have done this in a collective capacity. It had been the religious concern of several members of this society, to bear testimony against the trafficking in men. In these pious labours, John Woolman and Anthony Benezet, both public friends or ministers, were conspicuously eminent; the former travelled through many parts of North America on foot, and testified against the injustice of slavery, not only in words, but in the expressive language of conduct: when those who kept slaves kindly received and entertained him on his travels, he was not free to accept their kindness, as it was liberally offered; he considered what he received as the produce of the labours of the slaves; and however trying this might be to him, he found it his duty to leave the value in money, of what he had taken, that he might depart from the house clear in his testimony. The latter kept a school at Philadelphia, for the education of black people; often pleaded in their behalf; published several treatises against slavery, and at his decease left what he had in support of that school, to which he had devoted so much of his time and attention when alive. It was the happiness of the friends universally to have their eyes opened, to see the impiety of retaining those in involuntary servitude who had never given offence. In 1727, the church at large assembled at Philadelphia, had declared against the iniquity of the African trade; in 1754, they testified, that to live in ease and plenty by the toil of those, whom fraud and violence had put into their power, was neither consistent with christianity nor common justice. All the Quakers accordingly liberated their slaves; and, though this measure appeared to be attended with considerable loss, yet it is remarkable, that in the end, it became ultimately beneficial to them, even in a temporal capacity. Most of the slaves who were thus unconditionally freed, returned without any solicitation to their former masters, to serve them, at stated wages, as freemen. The work which they now did, was found to be better done than before; it was found also, that a greater quantity was done in less time: hence less than the former number of labourers was sufficient. From these, and a variety of other circumstances, it appeared, that their plantations were considerably more profitable when worked by freemen, than when worked, as before, by slaves; and that they derived therefore, contrary to their expectations, a considerable advantage from their benevolence. As it has been the happiness of the friends, to be religiously convinced of the injustice of enslaving mankind; so consistent with these principles, the members of the community are

are liable to be disowned, if they are any way concerned in the slave trade; and accordingly it becomes the care of every particular meeting, as well here as in America, to see that its members keep clear of this traffick, as well as of other species of injustice, and departures from the principles they profess.

We might now take our leave of the subject of slavery, and the parts of the earth it has so hideously deformed; under the comfortable information, that the evil ~~has~~ rather abated, and under the pleasing hope, that it will at length entirely pass away: however, before we enter upon the lands of greatest liberty, the interior tracts of America; where the natives seem unrestrained and free, to a degree of wildness; where the senate, while it debates on the interest of the tribe, leaves individuals to decide their own contests between themselves; and where the children must not be corrected, for fear of breaking their native spirit of freedom; a very short history of slavery in general, may perhaps be entertaining.

5. *Slavery in Antiquity.*] Besides the bond servants we read of in antiquity, who found protection and a comfortable provision in the households of the patriarchs; and such as sold all that they had, then ~~lands~~ and themselves, to Pharaoh, for corn, in the time of famine, when Joseph was governor; who removed them to cities from one end of the borders of Egypt to the other; and gave them seed to sow the land, and made a law, that Pharaoh should have the fifth part of the increase, and four parts should be their own, for seed of the field, and for their food, and for them of their households, and for food for their little ones: besides these, we read of slaves of other descriptions, at very early periods. It was generally customary with the nations in antiquity, to lead their prisoners of war into captivity; and these, with their offspring, were detained in servitude. The Goths also in later days, on the subversion of the Roman empire, imposed on the people they had conquered the severity of servitude. It is thought that this class of slaves had its beginning as early as the days of Nimrod; and the horrid practice of kidnapping, or stealing off and selling the human species, appears to be of equal antiquity. The story of Joseph, as recorded in the sacred writings, shews, that there were men, even at that early period, who travelled up and down as merchants, collecting, not only ~~spicery~~ and other wares, but the human species also, for the purposes of traffick. Homer mentions Egypt and Cyprus, as common markets for slaves, about the time of the Trojan war; and Zenophon, in describing the dramatic Grecian dance called Harpea, gives a most lively picture of the rueful days of antiquity; when the stealing of men, as it was accompanied with danger, was accounted valour; and pirates sought at once emolument and honour, in the equally hazardous and iniquitous business. The figure of the Harpea was thus: one of the actors or Grecian soldiers, in the character of an husbandman, is seen to till his land, and is observed, as he drives his plough, to look frequently behind him, as if apprehensive of danger; another immediately appears in sight, in the character of a robber; the husbandman having seen him previously advancing, snatches up his arms; a battle ensues before the plough. The whole of this performance is kept in perfect time with the music of the flute. At length the robber having got
the

the better of the husbandman, binds him, and drives him off with his team. Sometimes it happens that the husbandman subdues the robber; in this case the scene is only reversed, as the latter is then bound and driven off by the former. This entertainment, it may be observed, was taken from real manners.

We learn from Thucydides, that the Grecians themselves, in their primitive state, as well as their cotemporary barbarians who inhabited the sea coast and islands, gave themselves wholly up to piracy, as their only profession and support. As well whole crews for the benefit of their respective tribes as private individuals, embarked in this shocking business; they made descents on the sea coasts, carried off cattle, surprised whole villages, put many of the inhabitants to the sword, and carried others into slavery. The Jews, who appear to have been used as a scourge to the idolatrous descendants of Canaan, by divine appointment, held some of the heathen in bondage; yet were restrained by the law from abusing their persons, and were obliged to give them their sabbaths and jubilees. It was appointed, that their should be one law, one rule of justice for the native and the stranger; and they were repeatedly called on to remember, that they themselves had been slaves in Egypt and strangers in their land. Such were the restrictions the Jews were under in their conduct to the Heathen slaves, though only under the law in which many things were permitted, because of the hardness of their hearts. It remained for christianity, the last and most glorious dispensation, which breathes peace on earth and good will to man, to abolish the distinctions between Jew and Gentile, Greek and Barbarian, Bond and Free. The first converts to the holy faith, were conspicuously a family of love, averse from the vain distinctions of the world, having all things in common; and the commission of the everlasting gospel, was extended to mankind without the distinction of nation or profession; even in after ages, when the glory of the most holy religion seemed much obscured in its professors, the principles of benevolence, which it inculcates, generally prevailed at length, against the barbarous universal and ancient practices of holding servants in perpetual bondage, and which had long deformed the Gothic times, (*Pro Amore Dei, pro Mercede Animæ*, or, for the love of God, for the good of the soul). Charters were granted for the manumission of the slaves, which then composed the majority of the people; and about the close of the twelfth century, a general liberty prevailed over the west of Europe. But alas! the professors of the christian name, when these happy reformation had been wrought at home; many of them abroad renewed the piratical manners of antiquity: the Portuguese led the way, our nation, the Spaniards, French, and other maritime powers soon followed the example. Within two centuries of the preceding happy era, which so generally abolished slavery in this part of the world, the Europeans made their descents on Africa; and committing depredations on the coast, first carried the wretched inhabitants into slavery; the natives, terrified, fled in confusion from the coast, and sought in the interior parts of the country, a retreat from the persecution of the invaders. The Europeans pursued; entered their rivers; sailed up into the heart of their country; surprised them in their retreats, and dragged them off. Again the natives fled in consternation,

nation abandoned the banks of the rivers, and left the robbers without a prospect of their prey. The booters now adopted different measures; they built themselves forts and settled in the country: with the gaudy trappings of European art, they excited the wonder and curiosity of the Africans; by presents and every appearance of munificence, they seduced their confidence and attachment; they found out suitable tools for their iniquitous designs; put these upon furnishing them with their countrymen for slaves, and thus, when they themselves could no longer be thieves, they at last became receivers.

SECTION VI.

AMERICA.

We may now consider the Aborigines of America, or the native Indians of the new world. It might seem almost superfluous to mention that the Europeans have settled here in far greater numbers perhaps, than in all the other parts of the earth; a view of these people, however, is naturally included in a sketch of the nations of Europe. It is not so much their different manners, as different situations and political divisions, that separate them from each other.

1. *Complexion, Features, &c.*] As the Continents of America are extended through every uninhabited climate in the world, we may naturally expect to meet with every variety among the several tribes who inhabit this largest quarter of the globe. From the frosts and snows, however, which desolate its most southern extremity, all across the torrid zone, and quite away to the polar regions on the north, there seems to be less difference in the features, complexion, language and manners of its several tribes than of any other nations, comprehended in an equal extent of country. As they appear to have derived their origin in very remote antiquity, from the Tartars on the north, or the clans of wandering Scythians, that were the farthest removed from the arts and manners of the polished nations in antiquity, and quite beyond the notice of all history; as they seem to have continued, with inviolable attachment, many of their ancient customs to this very day; in the history of one of these we shall often see a just picture of the rest, and perhaps, a most lively representation of the manners of some of the rude nations of the earth in the days of the ancients. As this widely dispersed people generally lead a wild and roving life, continually exposed to every severity of climate, and also anoint their bodies with fat or grease, and colour them with paints, they are of a dark complexion even in temperate climates; on the other hand, the hottest parts of America are refreshed by breezes, or cooled by the snow-covered mountains, which arise there to an astonishing height: this prevents the natives from becoming perfectly black like the negroes; and especially as the country is not overstocked with people, and the inhabitants have an opportunity

opportunity of choosing the most pleasant situations: The natives of America seem to differ more in size, than in features or complexion; indeed in this respect, their extensive country of many climates, seems to afford a greater variety than the whole earth besides: who, for instance, are more diminutive than the little Greenlanders, and their neighbours at the Polar regions? between four and five feet in stature; and what nations are so strong, active and gigantic as the tall tribes of Indians that have been seen in Patagonia? among whom the tallest of the English adventurers under the commodore Byron, appeared but like pigmies.

2. *Intercourse with Europeans.*] Before the Europeans arrived in America, some of the natives, especially the Mexicans, had made considerable advances in the arts; they had canoes, stone houses and regular towns; they had temples, but their profession was idolatry. In their picturesque and emblematic drawings they had made an essay towards the art of writing or record: but unhappily they had gold and valuable jewels; to rob them of these, and take possession of their country, the cruel Europeans put millions to the sword, reduced others to slavery; and destroying their improvements, together with their government, threw the rest again upon their native wilds: though some of them have been bowed to the yoke of slavery by the Spaniards; and some of them, corrupted by the Dutch, have adopted the practice of the African kidnapping; while others have been reduced to civilization by the Jesuit-professors.

3. *Passion for Liberty.*] These Indians are generally enthusiasts for liberty. Their principal business is hunting, fishing, or war; agriculture and domestic concerns devolve upon the women. When a child, is born the mother and the infant are plunged in'o the water, the mother attends to business the next day as usual; the child is tied or swathed down to a piece of board; the board, together with the child is hung upon a branch, laid down upon the ground or taken up by the mother as occasion may require; in this situation the infant is taken care of without much trouble, till it gets strength in its limbs, it is then loosened and let to crawl about: as they are brought up without correction or restraint, their passions seem to grow violent with their years, and all their actions seem carried to extremes. Their revenge seems implacable, their friendships unbounded; their prisoners of war are adopted into their own families and considered as one of themselves, or else they are put to death with the most relenting cruelty; so little idea have they of slavery or subordination, and so marked are all their actions with the extremes of hatred and love.

4. *Public Assemblies.*] Upon serious occasions the Indians are very grave; they are observant of those in company; respectful to the aged; they never speak before they have well considered the matter, and are sure the person who spoke before them has entirely finished: hence they have the greatest contempt for the vivacity of the Europeans, who continually interrupt each other, and frequently speak all together. In their assemblies and public councils, every man is heard in his turn, according as his years, his wisdom, or his services to his country, have ranked him. In some tribes they have a king, and in some a sort of nobles; but their power is rather persuasive than coercive.

coercive ; they are rather revered as fathers, than dreaded as lords. The young attend the public councils for instruction ; here they learn the history of their nation ; here they are inflamed with the songs of those who celebrate the heroic deeds of their ancestors ; here the orators express their thoughts in a bold and figurative manner, stronger than the refined nations of Europe can bear, and with gestures equally violent, but often extremely natural and expressive : here the interests of the nation are debated on and resolved, they regulate whatever regards the internal peace and order of the state, and determine on future expeditions ; the bond of friendship unites the society ; every one hastens to execute the orders of the senate, and so unanimous are they in their conduct and in all their manners, that in the history of the tribe we may read the habits of the individual, and, reciprocally, in the life of the Indian we have the history of his nation.

7. *Mode of War, Cruelty.*] When a war is resolved on, the principal captain summons the youth of the town to which he belongs ; the war kettle is set on the fire ; the war song and dances commence : the hatchet is sent to all the villages of the nation, and to all its allies ; war songs and hideous howlings are heard day and night over their tract of the country ; the women add their cries to those of the men, lamenting the friends they have lost either in war or by a natural death, and demanding their places to be supplied by captives from the enemy. None are forced into the war ; those that have a mind to share in the expedition give small billets of wood to the war captain, they are then considered as enlisted, and it is death to recede. The warriors have their faces blackened with charcoal and dashed with streaks of vermilion. The nations of Indians in America are separated by vast desert frontiers, and embosomed in thick and gloomy forests, that must be passed before they meet with the nation whom they intend to attack ; these are sometimes wholly ignorant of any danger, the enemy having waited whole years to attack them by surprise, and it falls an easy prey to the unexpected fury of the invaders : but it more frequently happens that it has notice of the design, and prepares to take the same advantage of the least want of vigilance in those who mean to attack them. They light no fires to warm themselves, or dress their victuals, but subsist on the frugal pittance of a little meal mixed with water ; they lie close to the ground during the day, and march only in the night, and even then with the utmost precaution. When they discover an army of the enemy, they throw themselves flat on their faces among the withered leaves, from which they are hardly discernible, their bodies being painted of a colour to resemble them. They generally let a part pass unmolested, and then rising a little, and setting up a most tremendous shout, which they call the war-hoop, they pour a storm of musket bullets upon the enemy. The party attacked return the same cry, and every man shelters himself behind a tree, and fires on the adverse party, the moment they rise from the ground to give the second volley : after fighting for some time in this manner, they leave their covert, and rush upon each other with small axes or tomahawks ; the contest is soon decided, and the conquerors satiate their savage fury with the most horrid insults and barbarities on the dead bodies of their

their enemies: they cut off the scalps and carry them off to their huts to hang up as trophies of their valour and victory. The prisoners are offered to those who have lost friends; and, he is received into the family or sentenced to death; if the former, he is considered as a father, a son, or a husband that is lost, and no other mark of captivity remains than a prohibition of returning upon pain of death; but if the prisoner is refused, it is no longer in the power of any one to save him. The nation is assembled; the scaffold is raised, and the prisoner is fastened to a stake; he immediately opens his death song, and prepares for the ensuing scene of cruelty with a most undaunted courage, while his persecutors make ready to put it to the utmost proof, by every torment which the mind of man ingenious in mischief can invent: the prisoner endures all their tortures with astonishing constancy and resolution, not a groan, not a sigh, nor a distortion of countenance escapes him; he possesses his mind entirely, in the midst of the most exquisite anguish, and only seeks relief from his misery by insulting his tormentors, and endeavouring by the most contemptuous reproaches to provoke their rage, that they may at once put him to death in the height of their fury; this he sometimes effects; and this horrid tragedy, at the recital of which human nature is ready to shrink, is finally closed.

6. *Unreserved Friendship, Funerals, &c.*] As the severity of their temper on these dreadful occasions, seems unparalleled in the history of any other nation, so the enthusiasm of their friendship seems equally violent. They delight in their family and friends while they are living, and when they are removed by war or natural death, they regard their remains with friendship and affection: the loss of one of their people is regarded by the whole town to which he belongs; no business however important, is taken in hand; no rejoicing however interesting the occasion, is heard, till they have performed their ceremonies in honour of the dead: these are executed with a great solemnity. The body is washed, anointed and painted; it is followed by the whole village, with mourning and lamentation to the grave, and there interred in the most pompous ornaments of the deceased. His bow and arrows, together with the things he most valued, and provisions for the long journey they suppose he has to take, are placed by him in the grave. After the funeral those who are nearly allied to him, conceal themselves a considerable time in their huts to indulge their grief. On these sorrowful occasions their neighbours come to condole with the afflicted, and amuse or cheer them with presents. After some time, they revisit the grave, they renew their lamentations, they clothe the remains of the body in new ornaments, and repeat the solemnities of the first interment. Every eight or ten years they celebrate a festival, which they call the feast of the dead, or the feast of souls; the day is appointed in the public council; the wealth of the nation is exhausted on the occasion, and all the ingenuity of the Indians displayed; the neighbouring people are invited to partake of the feast, and be witnesses of the solemnity. The bodies of all those who have died since the last festival, are now taken out of their graves; those who have been interred at the greatest distance, are diligently sought for by their relations; who, far from being discouraged by their insupportable stench, cleanse them from the worms, and bring them on their shoulders through tire some

some journeys of several days, without suffering any other emotions to arise, than those of regret, for having lost persons who were so dear to them in their lives. When all the bodies are collected together, they are dressed in the finest skins they can procure; the feast is held; their greatest actions are celebrated, and all the tender intercourses that took place between them are recounted. A large pit is dug in the ground, and the bodies reinterred with pomp, with mourning, and with lamentation.

The Indians of America hold a future state of existence; they make an offering of their first fruits; some seem to hold in veneration the sun and moon. They have their priests, their conjurers, their fortune-tellers and doctors, who are regarded by the credulous, as possessed of supernatural powers. They regard dreams, and the singing and flying of birds, as omens of future events. Some tribes are peaceful and averse to the bloody business of battles, others sacrifice or devour their prisoners of war. Some derive much of their food from the waters, others principally feast upon venison; some wear skins of beasts, some a kind of cloth which they make from cotton, and others hardly use any covering at all. Before they were visited by the Europeans, their tools and arms were like those of the South Sea islanders, with the addition of the bow and arrows; like the islanders also, some of them disfigure their bodies, to make themselves look fine; they bore the nose, the lips, and cheeks, they draw down their ears to touch their shoulders, and by pressure they deform the whole head.

SECTION VII.

LANDS ROUND THE NORTH POLE.

Having now completed an imaginary tour, round, by far the greatest part of the earth, and observed a variety of manners and of men; before we make our descent on the polished nations of Europe, we may lessen our airy flight, and sweeping a smaller circle on the north, survey the nations of little people that surround the Northern Pole.

1. *Superstitions of the Greenlanders.*] These nations seem generally immersed in the grossest superstitions, from Greenland the most eastern part of North America, westward, round the globe, across the northernmost wilds of America, Tartary, and the tracts of Lapland which form the farthest parts of Europe, that are washed by the Frozen or Hyperborean ocean. To the regions beyond the grave, these romantic people transfer the employments which give them delight while here upon earth. There they imagine, in the abysses of the sea, an elysium of perpetual summer, of plenty of seals, reindeer and wild fowl, that are to be hunted without toil, that are even
already

already caught, and boiling in kettles ready for their repast; here, say they, the diligent and active whale-catchers, and hunters of seals, with those that have been drowned in the sea, or died in child-bed, enjoy a happy existence; having first had to suffer in their passage to these delightful regions, for five whole days sliding down a rugged rock, which has hereby been covered with blood and gore: others in those lands of meteorous wonders, fancy Paradise in the moon; the dances of sportive souls, in the motions of the streamers; and rain, the overflowings of the lakes where they fowl and fish. The ignes fatui they suppose to be torngaks or spirits, and beings of this sort both benevolent and mischievous, they suppose to inhabit the air, the waters, the cliffs of the rocks, the mountains, the winds, and even the things that they eat. Their merriments and superstitious meetings are both accompanied with the sound of a drum. They have many romantic tales of spectres and apparitions, or ghosts; these the women relate to their children, and initiate them in the superstitions of their fathers. The sun, moon and stars they believe to be living creatures, as men, women, rein-deer, dogs, bear-hunters, seal-catchers, &c. During an eclipse of the moon, they carry chests and kettles on the top of the house, and rattle and beat upon them to frighten the moon back to its place, who they think goes about among the houses to pilfer their skins and eatables, and to kill those people who have not duly observed the rules of abstinence. At an eclipse of the sun, the women pinch the dogs by the ears; if they cry, as they always do, they account it a sure sign that the end of the world is not yet come. When it thunders, they say, two women are stretching and flapping a dried seal skin, and the thunder comes from that rattle. They believe grossly in witches, wizards, and angekoks or conjurers; these pretend to take journeys or flights with familiar spirits, to the invisible regions and abodes of souls, while they remain inactive and quiet before the credulous multitude, who are waiting their return in the dark; by and by they begin to stir and set up a cry; a light is made, and they seem pale and out of breath, as if fatigued with a journey. On the benedictions of these, and on strange superstitious ceremonies they depend for good luck in their employments, and for recovery from their sickness.

A people thus superstitious, it may well be supposed, would readily discover something supernatural in the superior arts of the Europeans: in fact when these read aloud to them, they could hardly be persuaded but the reader must first hear a voice in the book; and it was a good while before they could be prevailed upon to carry a letter, it seemed such a strange and supernatural thing, that a scrolled paper could speak to the person who received it, and tell him what the writer wanted as well as they could do themselves.

2. *Their Strength and Agility.*] The strength and agility of body in this hardy little race is astonishing; after enduring hunger for several days in their little kajaks or boats, they will ride out a storm where a European boat could not live. The kajak is principally formed of laths and hoops, and covered with seal skins both above and below; it is of the form of a weaver's shuttle, and six yards in length; in the

the middle is a hole, into which the Greenlander slips his feet and sits down, he tucks the under part of his water-pelt or great coat round the rim or hoop at the hole, that the water cannot penetrate, and cockles along with great parade, his fable sea-vestments bespotted with white buttons, giving him a shewy appearance. He has his harpoons and lances at hand, which are very ingeniously contrived, and curiously made, and his line coiled up before him, for striking the seals; but it is with his *pautik* or oar, that he navigates his little vessel; this he lays hold of with both hands by the middle, and with great regularity and quickness, he strikes the water on both sides, and rows along with great velocity; he darts over the boisterous billows like an arrow; if a wave breaks over him he is presently again skimming along the surface; if he be overturned, and his head be directly downwards, with a swing of his *pautik* he recovers his former station; but if he loses this he is commonly lost himself: it is on this trying occasion he creeps out of his *kajak* and calls aloud for help; if none be at hand to come to his assistance, he binds himself to his boat, that his body may be found and interred. Their *umiaks* or womens boats are similarly formed, but large and open at top, these are rowed by the women, but the men in their *kajaks* at hand, shelter it from the greatest waves, and in case of need, lay hold of the gunnel with their hands, to keep it on a balance. They coast along in these boats, voyages from two to four hundred leagues, with their furniture and substance, at the rate of twelve leagues a day. At every night's lodging they unload pitch their tents, drag their boat ashore, turn it upside down, load the beams fore and aft with stones, that the winds may blow it away.

If at any time the coast will not permit them to pass, six or eight of them take the boat on their heads, and convey it overland to a more favourable water. Some of these nations shew uncommon agility in scowring over the encrusted snow on skates, of deal or ribs of animals; with these they run down the beasts of the chase, they even overtake the fleet deer; they scale the hills and slide down precipices: in these exercises they make use of a javelin or pike, and with this they kill the animals they pursue; even the women partake in these labours, and are themselves so strong they will one of them carry a beam which it would take two men of the more refined nations of Europe to lift from the ground: yet hardy as these people are, and bold amid the dangers they have perpetually to encounter, in procuring their sustenance, they have generally been accounted a timid race, incapable of being embodied as military troops; indeed they seem so much attached to their own native snows, and their own native manners, they have very little idea that happiness can be found in the lands or the pursuits of any nations but their own. And if they shewed as much wisdom in all their partialities as they do in avoiding the horrid practice of war, we might certainly account them the wisest and happiest nations among mankind; but the strange mixture of good and evil in their manners in social life, render their national character equivocal and undetermined.

3. *Houses, Tents, and Feasts*] These people change their habitations according to the season, living in houses in winter, in summer in tents. Their houses are built with stones and sods; these are roofed with beams and rafters, and small wood between them; over these are laid bushes and turf, and fine earth on the top; they have neither door nor chimney; the use of both these is supplied by a vaulted passage, four or six yards long, entering the middle of the house in the front; this is so low that they must nearly creep on their hands and feet, especially when they first step down into the passage, either from within or without. The walls are hung on the inside with old skins, to keep out the damp; the roof on the outside is covered with them also. From the middle, all along one side of the house, there is a bench of boards raised about a foot high, and covered with skin; this is divided into small apartments, resembling horses stalls, by skins stretching from the wall to the posts that support the roof in the middle; each family has a stall, and the number of families in one house are from three to ten. On these floors they sleep upon pelts, they also sit on them all day long; the men foremost with their legs hanging down, carving their tackle and tools; the women behind them minding their sewing, these also cook the victuals. Opposite to them on the front of the house are windows, made of seals guts and halibut's maws, and sewed so neat and tight, that the wind and snow are kept out while the light is let in. A bench runs along under the windows, the whole length of the house, on this the strangers sit and sleep.

By every post is a fire place, of a curious and simple kind, for the use of each family; it is nothing more than a lamp hewn out of a kind of chalk or soft marble, they fill it with train of seals, and use fine moss instead of cotton: over this they boil their meat in a sort of kettle of the same substance with the lamp; over all they fasten a wooden rack, on which they lay their wet clothes and boots to dry. During their dark and tedious winter the lamps sufficiently enlighten the house, and warm it more equally than a German stove-heated room.

On the coming on of spring when the snow begins to melt and threatens to run through the roof, they move out of these huts, rejoicing to spend the summer in tents. Their tents are framed with poles, and covered with skins; the order of their tents is much the same as that in their houses, but they are much more cleanly; and in these they endeavour to display some finery and taste. On occasion of a visit,* the guests or visitors are welcomed with singing and presented with a lost pelt to sit upon; the men talk very gravely and considerately of the weather, of hunting and fishing; the women first mutually bewail their deceased relations with an harmonious howl, and then divert themselves with all manner of little stories, mean

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while

* The following is a catalogue of the dishes at one of their most sumptuous feasts: 1. Dried herrings. 2. Dried seal fish. 3. Boiled ditto. 4. Half raw and rotten ditto, mikiak. 5. Boiled willocks, a kind of birds. 6. A piece of half rotten whale's tail, a dish in as high repute, as the haunch of venison is here, when kept till it has got the epicurean relish or goût. 7. Dried salmon. 8. Dried reindeer venison. 9. A desert of crow-berries, mixed with the chyle out of the reindeer. 10. The same, enriched with train oil.

while the horn with the snuff goes constantly round : when the banquet is brought in the guests let the host press them often, they pretend indifference about it, lest they should appear poor or half starved.

Their table talk they can prolong for several hours. The grand subject of their conversation, is their adventures in seal-catching. The left-hand personates the seal, and represents the various leaps the animal took this way or that: the right displays the motions and evolutions of their kajak and their arm; how they extended their uplifted arm; how steadily they aimed, and how forcibly they impelled the fatal dart. If Europeans are present, they like to hear them repeat something of their country. They are told that such a city has so many inhabitants; that such a number of whales would be required to feed them for one day; but they however eat no whales, they eat bread that grows like grass out of the ground, and the flesh of divers creatures, some of which have horns; they are also carried from place to place, either on the backs of very strong beasts, or in vehicles drawn by them. Then they think they know it all; and accordingly, bread they call grass; oxen rein-deer; and horses huge dogs, for these are what draws them over the ice and snow. They admire all, and express a desire of living in such a fine and fertile land; but their courage fails when they are told that it sometimes thunders there, and that there are no seals to be caught.

3. *Manners diverse*.] Though several different families with their children, of divers ages live in one house together, they are so still, circumspect, and peaceful, scarcely any disturbance is heard amongst them. If a man returns home with provision in the evening, especially with a seal in winter, which are then scarce and hard to be caught, he gives a portion to all in the house, even the poor widows; and invites some neighbours besides to partake of their good cheer. Hospitality is practised all over the country, both towards their acquaintance and strangers. Their children run about as quiet as lambs, and their fond attachment to their parents grows with their years; they are brought up without chastisement, and treated on the footing of friends; if they are desired to do any thing contrary to their minds, they say, without any ceremony, I will not; the parents put up with the refusal till the children see their error. When a young man takes a wife, both himself and his bride are subject to his mother, as head of the household affairs. They seldom tell an untruth knowingly, particularly when they are to shew a traveller the way; nay, they will rather go a piece with him. Cheating and stealing are hardly known amongst them; violent assaults or highway robberies, are quite unheard of. Among such people a legislature might seem superfluous, in fact, they are governed rather by manners than by laws; and their drum dances supply every want of political institutions; in these simple republics, perhaps older than Athens or Sparta, they find an Areopagus, or justice hall; a gymnasium or place of sports, and a commercial fair for bartering their little wares. Besides their drumming and dances, they play at ball by moonshine: they have also games for trying one another's strength or hardiness: for instance, two competitors strike one another successively on the bare back with the fist, and he that holds out the longest

is the conqueror. Again, they sit down, and link legs and arms, or hook fingers together, and he who out-pulls the other is master. Strange diversion! almost as strange, but not quite so dangerous as the sport of wrestling, or the game of throwing one another down. But the method in their assemblies of deciding disputes between plaintiff and defendant, is the most strange and extraordinary: if a Greenland imagines himself injured by another, he betrays not the least trace of vexation or wrath, but composes a satirical poem; this he repeats so often, with singing and dancing in the presence of his domesticks, and especially women, that they get it in their memory; then he publishes a challenge, that he will fight his antagonist, not with a sword, but with a song: the respondent betakes himself to the appointed place, and presents himself in the encircled theatre: the accuser begins to sing his satire to the beat of the drum; his party in the auditory accompany him in the song, and back every line, with repeating in chorus the words Amnaaiah: he thus exposes the deeds of the aggressor, and the audience laugh aloud: the defendant then steps forth, answers the accusation, and endeavours to ridicule his opponent, in like manner; all which is corroborated with the united chorus of his party, and the laugh changes sides. In the same odd manner the plaintiff replies; the defendant rejoins; with the most cutting things they can think of, only there must be no mixture of rudeness or passion. The company at large constitute the jury; the victory is publicly declared; the delinquent endures the punishment of exposure, and the parties become friends.

These simple people do not like to contradict, interrupt, or out-bawl one another in discourse; they have not a single word in their language by which to utter abuse or cursing. They laugh at the formalities and compliments of the Europeans, at a man's uncovering before his superior in rank; and wonder to see a master strike or maltreat his servant. They discover not the least trace of obscenity in their conversation; and on observing the foreigners immodest or prophane, they stood amazed, and knew not how to account for it, but by saying: "these people have lost their understanding, the mad waters," i. e. the strong liquors, "have made them insane." So amiable appear these people, amidst their darkness and superstitions, when we survey them in the most favourable point of view; on the other hand there are many exceptions to this general description.

It sometimes happens that when the father of a family dies, the poor forlorn widow has no near relations, she lies on the ground with her children about her, bewailing the loss of her husband almost to distraction; gosses of an evil description pretend to condole and sympathise with her in her afflictions, but at the same time clandestinely bear away the effects of her late husband; she perhaps endeavours to ingratiate herself with her greatest plunderer: he has a right to maintain her according to the usages of the place, but when he is tired of her, she and her children are again left helpless. If none want servants, or be disposed to protect them, a little longer perhaps they protract life, by eating fishes, muscles and sea grass, but finally they must starve or be frozen to death, having neither cloathing nor lamp-oil. If the orphans survive, perhaps they are

unfurnished with a kajak, and what is still more unpromising, they are uninstructed in the difficult business of managing them; they must stay on shore and join in the drudgeries of the women. If people on shore see a kajak overset at sea, and the poor man is no relation, nor has particularly served them, they behold with insensibility, nay, with a certain entertainment, how he struggles in vain to save himself; it is too much trouble to step into their kajak, and hasten to his help; and should they be incommoded with the shrieks and cries of their female relations, they sink away.

The spirit of revenge seems to be as strong in these people as in the other American Indians; like them also they keep their dreadful resolutions inviolably secret, till an opportunity offers of wreaking their vengeance on those that have offended them; and their enmities are conveyed down to their children and grand-children. When a murder is committed the assassin generally perpetrates the deed at sea, in a treacherous manner, by oversetting the Greenlander in his kajak and drowning him, or by throwing a harpoon into his back behind. If the friends of the murdered man discover the ruffian, they stifle their anger, nay, they do not so much as let a word about it transpire, for fear that he or his spies and accomplices might dispatch them too, to secure himself; yet they will not forget to avenge their friend's death, when they meet the murderer alone, even though thirty years should elapse before they can effect it. They generally attack him on shore, declare the reason in a few words, then stone him or run him through, and cast his body into the sea; or if they are very much provoked, they hew him to pieces, and swallow a bit of his heart or liver, because they think his relations will by that means lose their courage to fall upon them. Some poor creatures, for the sake of procuring themselves respect, or a livelihood among the people, pretend to the power of witchcraft; sometimes however, they are blamed for having bewitched some person that has died, on this occasion the country will join to stone them, and they are thrown into the sea or hewn to pieces. Sometimes, when such poor wretches find there is no possibility of escaping, they plunge themselves into the ocean, to elude the weapons that would hew them in pieces, and leave their dismembered carcase a prey to the ravens. However, if the person cut off leave any near relations, they endeavour to avenge the death; and thus the tragedy issues in a prolonged series of murders.

Poligamy is not very common among them, yet some have more than one wife. When the women cannot be prevailed upon to marry by kind and courteous persuasions, they are compelled to it by force, and sometimes by blows. The matrimonial contract is not so irrevocable with them, but the man may put away his wife, especially if she has no children: this he does with little ceremony, he only gives her a sour look, marches forth, and does not return again for several days; she perceives his meaning directly, packs up her clothes, and removes to her own friends. The women before marriage, are squeamishly shy, they would account it an affront or an injury in company, if a young fellow was only to offer them a pinch of snuff. The women that are repudiated or divorced from their husbands sometimes turn prostitutes; and, as for the married people,

people, some are so shameless that, if they can, they break the matrimonial obligation on both sides without a blush. When a mother dies and leaves a helpless babe behind her, if the father has no one to nurse it, he cannot endure to see the infant's distress; he buries it alive along with its mother; they are wrapped up in skins, carried to some high place and covered with broad stones to keep off the birds and foxes: those also that become old and infirm, and have not friends to support them, are treated like the infant. Though they are generally honest among themselves, the indigent and lazy are sometimes on the watch for stealing, especially from unknown travellers; but if they can rob a foreigner, either by craft or force, they glory in the fact, as a mark of their superior abilities; therefore the Europeans place no great confidence in them, because they have been cheated by them many times; nay, have been decoyed ashore, and then basely murdered, and robbed of their goods. Thus gloomy are the shades in the sketch of these people.

5. *Tartars, Laplanders*] What has here been related is peculiarly applicable to Greenland; the other Americans, and the Tartars of Asia, however, who inhabit the same high latitudes, are, from their similar situations, put upon the same habits and manners of life; to procure themselves subsistence they must necessarily be hunters, fishers, or fowlers; and in winter, they must betake themselves to their close and warm houses: from the little that we know of them, their conceptions or superstitions seem even grosser than those of the Greenlanders. But of all these nations of little people, the Laplanders appear the happiest, most provident, and most improved, in the arts of life. The rein-deer, which the other thoughtless people have only fought to hunt and kill for immediate use, the Laplander has wisely reduced to domestication and servitude; and, in these creatures alone, he finds almost every thing his simple wants require; they feed him; they clothe him; with their skins he covers his tent, and of their skins he makes his bed; of these he makes his snow shoes, and with these his sledge is shod; of their milk he makes cheeses, and puts the whey to immediate use, or boils it with wood of sorrel, till it coagulates, and then keeps it under ground in casks or deer skins, to be used as a delicacy in winter; he preserves also the blood to mix with the marrow as a sauce in spring; even their intestines, when dressed and boiled, make him a dish he highly esteems: He converts almost every part of this valuable creature to some use or other: their sinews make him bow-strings, springs for catching birds, and threads for sewing; their horns he sells to be converted into glue; their skins also, and their tongues, which are accounted a great delicacy, are sent to the southern parts of Europe, and procure him foreign toys and luxuries: this is not all, the rein-deer carries him his journeys; it is yoked to the sledge, which is extremely light, by means of a strap which goes round its neck, and comes between its legs; the man guides the animal with a cord, which he fastens round the horns, and encourages it to proceed with his voice, and drives it with a goad. Some of the wild breed, though far the strongest, are yet found refractory, and often turn upon their drivers; who have then no other resource but to cover themselves with their sledge, and let the animal vent his fury upon that; but it is otherwise with those that are tame; no creature

creature can be more active, patient and willing; when hard pushed, they will trot nine or ten Swedish miles, or between fifty and sixty English miles at one stretch; but, in such a case, the poor obedient creature fatigues itself to death; and, if not prevented by the Laplander, who kills it immediately, it would die a day or two after. In general they can go about thirty miles without halting, and this, without any great or dangerous efforts. The food which this faithful domestic lives upon is moss; and while his fields are cloathed with this, the Laplander envies neither the fertility nor the verdure of the more southern landscape. Wrapt up warm in his deer skins, he defies the severity of his native climate; and, in the midst of snows, fearless and at his ease, he drives his herds along the desert, and calmly subsists where another would perish; his hardy cattle too, root up the frugal but favourite fare from under the white deluge; while his faithful dog prevents them from wandering. Caravans of these simple people diversify their long and tedious winter in excursions to the Finland fairs; and on the return of summer, in their own land of fowls; they indiscriminately prepare for those exercises of the field, which, in our lands of liberty, are by law, appropriated only to the man of wealth; but which in theirs, supply plenty and variety to their tables for one quarter of the year.

S E C T I O N V I I I .

E U R O P E .

We may now come home to the polished nations of Europe. Europe, though by far the least quarter of the globe, its political powers have now, for more than two thousand years, cut the greatest figure in the annals of mankind; these lands also bore the honorable title of Christendom, when Mohammed and his enthusiasts had spread their ravages and their doctrines over the nations which first heard the Christian name.

To attempt to exhibit the nations of Europe, and their varied manners in one general sketch, may appear preposterous and vain; however, it is but consistent, with the present design, to attempt the description; and, as wonder-stricken travellers have generally furnished the scenery of the views we have already taken of the other parts of the earth; it should seem essential, in order to impartiality, that we should thoroughly divest ourselves of national habits and prejudices; nay, in fact become as strangers, ready to admire and gaze upon every thing as new, while we survey the manners of these renowned nations. Leaving therefore, the superstitious Laplanders on the north, and on the east the followers of Mahommed, the Othman race or Turks; of Asiatic dress, extraction and manners. The Europeans seem strikingly distinguished from the rest of the world, in their advances in arts, science, and commerce; and in their nationally professing christianity. Their profession and their improvements, together with colonies of themselves, they have disseminated to all the different

different quarters of the globe: thus, acquainted with the peaceful and benevolent doctrines of the christian religion, and in possession of arts, which enable them to elude many of the calamities to which improvident and less improved nations are often exposed: how peaceful, how refined, how thrice happy, may we expect this distinguished race of the sons of Adam, to be above the rest of mankind! The nations of Europe however, on an impartial survey, will be found in their manners of life, and in their enjoyments, much like other men.

1. *Arts and Sciences.*] If we sweep round their parts, we shall find their ports crowded with vessels, and the produce and luxuries of every climate upon earth, landing on their quays; ashore are heard the hammer and the axe of the mechanick; and in the fields the voice of the husbandman. Water, air and fire, are called upon to impel their massive machines, their engines, or mills, and alleviate their labours; while the smaller works of the handicraft, the artist, and man of letters, supply many little conveniences and elegancies, never dreamt of among nations unacquainted with nice arts. That little instrument the watch, which he carries about him, informs the European how time is going on; by the help of printing, he can have in his pocket, records of science unknown to the learned philosophers of the ancients; by this, he learns what is going on in every quarter of the globe, and in fine, he dips his pen, and converses with his absent friends though widely dispersed over the face of the earth.

2. *Manners.*] The Europeans begin their week by devoting the first day to public worship; other seasons are also appointed for similar purposes; the seventh day closes their labours, and their week is done. As asylums for the weak and helpless, the sick and the poor, they erect buildings like palaces, and liberally endow them; or, they support them by frequent charitable contributions: yet, among these very people, evils subsist as in other parts of the world. As first on the list, we may reckon the horrid practice of war, with the ills it induces: the nations of Europe, though professing the most holy christian faith, quarrel with each other, and decide their disputes by force of arms; though there are but, comparatively, few immediately engaged in this bloody business, yet the evil spreads far; individuals, remote from the field of battle, talk over its tumults and carnage unconcernedly; or, partial to the arms of their own particular nation, with a degree of enthusiasm, rejoice in their success, and wish destruction to those who oppose them. In Europe there are gaols crowded with criminals, and on these are inflicted the punishment of whips, racks, gibbets and fire; nor have these severities been confined to those who have become pests of society, the innocent and the faithful have also endured them, for the sake of a good conscience. In Europe, notwithstanding its inhabitants are so improved, there are many of them suffer poverty, and some die through want; if their improvements were confined to the good of society, sure many of these evils would hardly be known; but they have formed themselves unreal and artificial wants, and for the supplying of these society is oppressed. It is far beyond the design of the present undertaking, to attempt a catalogue of the luxuries and superfluities

fluities of the nations of Europe. It may certainly be accounted an evil if these take hands from useful labour; and, that they do, may appear evident if we do but look about us. It is a common-place argument in favour of superfluities, that the luxuries of the rich give employment to the poor; but if these vanities had not a tendency to corrupt the minds of us poor mortals, and to mark out distinctions which flatter pride, the bane of human kind; if they did not naturally produce these evils; let the useless attendance bestowed on the wealthy, be but given to the labours of the plough or loom; can any thing be more evident than, that, under providence, the good things of this life would more plentifully abound, and the oppression of the poor be considerably alleviated? In fact it appears, wherever the sons of Europe have scattered desolation and wretchedness about them, it has been from motives of avarice, or for the gratification of unreal wants.

3. *Remarks and Reflections.*] Having now taken a general though very slight survey of the nations of the earth, as they occurred in our imaginary tour round the globe, we may again set out in a similar way, and as we pass along take a prospect of the lower orders of the creation, as variously diversified in the different regions of the earth; however, before we quit this most important part of geography, the description of the human race; a few reflections that naturally present themselves, may perhaps here appear becoming, rather than superfluous and impertinent. We have already seen in the accounts that travellers have furnished, that there has no nation run so wild, but its history generally affords also a view of something that is amiable, in the midst of all its rudeness and superstitions; and were wonder-stricken travellers still better acquainted with the manners of the people they have described, and were they more divested of national prejudices; we should likely still hear more of what is agreeable; on the other hand, we may find many evils prevail among nations which make the highest religious profession, and which are generally accounted the most civilized; what delicacy then does it require to describe the manners of men, or to draw national characters! and how carefully ought we to remember, that general descriptions can never be universally applied. In every nation there appear happy exceptions to barbarous and unbecoming customs; among every people woeful declensions from manners that are virtuous and principles that are sublime.

SECTION IX.

DIFFERENT APPEARANCES OF THE EARTH.

We may now survey the lower orders of the creation, as they are variously diversified in the several quarters of the globe; and, as man is highly interested in these, we may often observe him in a conspicuous point of view, in the varied picture; we may see how his habits and manners are often influenced by his particular situation; how he avails himself of the advantages it affords him, and how he evades the inconveniencies to which it exposes him; and something similar may sometimes be observed in our humble partners in the creation, the beasts and birds. As the different parts of our terrestrial ball receive the rays of the sun in various directions, and consequently its heat in very different proportions, they accordingly put on very different appearances; a polar prospect and a landscape at the equator, are as opposite in their appearances as in their situations.

1. *Polar Regions.*] The polar regions, that receive the solar beams in a very oblique direction, and that continue for one half of the year in night, present a picture bleak and hideous. The ground which is rocky and barren, rears itself in lofty mountains and inaccessible cliffs, and meets the mariner's eye at even forty leagues from shore; these precipices, frightful in themselves, receive an additional horror from being constantly covered with ice and snow; which daily seem to accumulate, and to fill all the vallies with increasing desolation; the few rocks and cliffs that are bare of snow, look at a distance of a dark brown colour, and quite naked; upon a nearer approach however, they are found replete with many different veins of coloured stone, and here and there spread over with a little earth, and a scanty portion of grass and heath. The internal parts of the country are still more desolate and deterring. In wandering this solitude, some plains appear to be covered with ice, that, at first glance, seems to promise the traveller an easy journey; but these are even more formidable and more unpassable than the mountains themselves, being cleft with dreadful chasms, and every where abounding with pits that threaten certain destruction. The seas that surround these inhospitable coasts, are still more astonishing, being covered with flakes of floating ice, that spread like extensive fields, or that rise out of the water like enormous mountains; these, which are composed of materials as clear and transparent as glass, exhibit a variety of colours, and assume many strange, phantastic, dazzling, and sometimes dreadful appearances. Some look like large islands, with plains, valleys, and hills, which often rear their heads more than a thousand feet above the level of the sea, and sink three hundred fathom under water. Some look like arches, rocks, castles, towers and spires; and these floating about give the whole scene the appearance of enchantment and illusion. Some look

look like ships in full sail, and people have often given themselves the fruitless toil to attempt piloting the imaginary vessel into harbour : this may appear incredible, but when it is considered, that the ships in these seas, rigging and all, are sometimes all over encrusted with ice, we may better account for so extraordinary a mistake.

In the arctic regions the meteors are also seen under a thousand strange and romantic appearances, astonishing to travellers, though, from their frequency, disregarded by the natives. " Nothing more surprised me, or entertained my fancy more," says David Crants, in his history of Greenland, " than when on a fine, warm, serene summer's day, the Hookeornen, or the islands that lie four leagues west of Good Hope, presented a quite different view from from what they have naturally. We not only saw them far greater, as through a magnifying perspective glass, and plainly descried all the stones, and the furrows filled with ice, as if we stood close by; but when that had lasted a while, they all looked as if they were but one contiguous land, and represented a wood or tall cut hedge; then the scene shifts, and shows the appearance of all sorts of curious figures: as ships with sails, streamers and flags; antique elevated castles, with decayed turrets, stork's nests, and a hundred such things; which at length retire aloft or distant, and then vanish; commonly a couple of hours afterwards a gentle west wind and a visible mist follow, which put an end to this *lufus naturæ*." This illusion seems to proceed from compressed and subtle vapours, intervening between the objects and the eye, and acting like different lenses or glasses.

It is perhaps owing to these different vapours, that the coasts of Greenland, which are not themselves enormously high, are seen to the amazing distance, sailors say, of near sixty leagues; they are at first seen as if raised in the sky considerably above the horizon; as they are approached they appear to lower by degrees, and settle in the water. In the polar regions the frost often makes the sea smoke like an oven; when the mist congeals in the cold air, the subtil icy spicula may be discerned like fine needles, or glittering atoms: it seems to be condensed mists or clouds of this kind, that reflect back the images of things on earth, like mirrors, and under the name of the blink of the ice, give notice to the mariner at a considerable distance, by glistening, that the ice lies below, when otherwise he might have dashed his vessel to pieces against it. In these regions of mists and fogs, the aerial or watery meteors of every kind are frequent. The solar rainbow is often seen different from ours; instead of a pleasing variety of colours, it appears of a pale white, edged with a streak of dusky yellow; the whole being reflected from the bosom of a frozen cloud: a lunar rainbow also is often seen, of a pale white, striped with grey; parhelii, parselenæ and haloes, are also frequent here; and balls of fire are seen shooting through the air. Sometimes whirlwinds happen that draw up water-spouts from the sea; and hurricanes, that drive the sea-water upon land, and scatter it about like snow; dust, stones and earth are torn from the ground, and mounted up in the air, the houses of the poor natives, quiver and crack; the tents and lighter boats are swept away. However, neither storms nor sudden rains are very frequent

quent here; the lightnings flash with little or no noise, and the northern lights which strike the nations of Europe with portentous terror, serve to cheer these people during their tedious winter, and light them to their business or their sports. The auroræ, the stars and the moon, which, when at full, keeps up for days together in the winter; these, their reflection from the ice and snows, and the refracted rays of the sun, which are often seen to redden the tops of the mountains, afford a light sometimes sufficient to read by.

2. *Tropical Climates.*] It is in the torrid zone the meteors and tempests assume the most terrific appearances, and it is there their effects are by far the most dreadful; the landscape also differs from the prospect of the polar regions. In the countries under the line, the sun, darting his beams directly downwards, the lighter soils are burnt up into extensive sandy deserts; on the other hand, those tracts which are moist and fertile, teem with vegetation, even to a noxious degree. The grass rises to such a height as often to require burning; the forests are impassible from underwoods, and so matted above, that even the sun, fierce as it is, can seldom penetrate. The banks therefore of the rivers, often lie uncultivated, and serve as retreats for beasts, insects and serpents. The smell of some of the plants is so powerful that it is hardly to be endured, and European adventurers that have sailed up the Senegal, ascribe the unwholesomeness of the voyage to the vegetable vapour; at the same time the beauty of the prospects these climes afford, exceeds description and the utmost art of the pencil. A spacious glassy river, with its banks here and there fringed to the very surface, by the mangrove tree, that grows down into the water, presents itself to view; lofty green plants, and the most gaudy flowers; beasts and animals of various kinds, that stand upon the banks of the river, and, with a sort of wild curiosity, survey the mariners as they pass, contribute to heighten the scene.

The different temperature of the air at the poles and the equator, produce very different effects. In the cold arctic regions, animal substances are scarcely ever known to putrify, and meat may be kept for months without any salt at all; on the contrary, in the tropical climates, such are the putrescent qualities of the air, that white sugar will sometimes be full of maggots; drugs and plaisters lose their virtue and become verminous. In some places they are obliged to expose their sweetmeats by day in the sun, otherwise the night air would quickly cause them to putrify. Silks and cloths, if exposed to the air, soon lose their colour; copper and iron are quickly eaten with rust; even the instruments, knives and keys, that are kept in the pocket, are nevertheless quickly encrusted; and the great guns, with every precaution, after some years, become invalid.

Upon the approach of our summer months, or the winter ones as they are called under the line, the sky from a fiery brightness, begins to be overcast, and the whole horizon seems wrapt in a muddy cloud; mists and vapours still continue to rise; and the air, which so lately was clear and elastic, now becomes humid, obscure, and stifling: the fogs become so thick, that the light of the sun seems in a manner excluded: nor would its presence be known, but for the intense

intense and suffocating heat of its beams, which dart through the gloom, and, instead of dissipating, only serve to encrease the mist. After this preparation there follows an almost continual succession of thunder, rain and tempests; during this dreadful season, the streets of cities flow like rivers, and the whole country wears the appearance of an ocean; the whole sky all around seems illuminated with unremitted flashes of lightning; every part of the air seems productive of its own thunders, and every cloud produces its own shock; the strokes come so thick, that the inhabitants can scarce mark the intervals; but all is one unrenitted roar of elementary confusion. When these terrors have ceased, with which however, the natives are familiar, meteors of another kind begin to make their appearance. The intense beams of the sun, darting upon stagnant waters, that generally cover the surface of the country, raise vapours of various kinds, which give birth to balls of fire or floating bodies of it; these from their accidental forms, rather than any real difference between them, receive the different names of the draco volans, or flying dragon; the ignis fatuus, or wandering fire; the fires of St. Helmo, or the mariner's light, &c.

At the water-spouts are seen in all their terrors, and large enough to dash ships to pieces; and in these parts of the world tempests put on the most dreadful forms. The Cape of Good Hope, as well as many islands in the West Indies, are famous for their hurricanes, and that extraordinary little cloud which is said to produce them, but which is perhaps rather the vapours (that happening to lie within the sphere of the growing tempest) that have been condensed as in the vortex of a whirlwind; this cloud appears when first seen like a small black spot, on the verge of the horizon, and is called, by sailors, the Bull's Eye, from being seen so minute at a vast distance; all this time, a perfect calm reigns over the sea and land, while the cloud grows gradually broader as it approaches; at length, coming to the place where its fury is to fall, it invests the whole horizon with darkness: during all the time of its approach, an hollow murmur is heard in the cavities of the mountains; and the affrighted animals, sensible of its approach, are seen running over the fields to seek for shelter. The violence of the blast is dreadful when it begins. The houses in those countries, which are made of timber, the better to resist its fury, bend to the blast like ozers, and again recover their rectitude. The sun, which but a moment before, blazed with meridian splendour, is totally shut out, and a midnight darkness prevails, except that the air is incessantly illuminated with gleams of lightning, by which one can easily see to read; the rain falls, at the same time in torrents, and its descent has been resembled to what pours from the spouts of our houses after a violent shower. The Europeans, when they first visited these regions, were ignorant of its effects, and the signs of its approach; their ships, therefore, were dashed to the bottom at the first onset, and numberless were the wrecks which the hurricane occasioned; but, at present, being forewarned of its approach, they strip their masts of all their sails, and thus patiently abide its fury. These hurricanes are common in all the tropical climates. On the coasts of Guinea they have frequently three or four in a day, that thus shut out the heavens for
a little

a little space, and when past, leave all again in its former splendour. They chiefly prevail on that coast, in the intervals of the trade winds, the approach of which clears the air of its meteors; and in general when they cease, these irregular tempests are found to exert their fury. All this is terrible; but there is a tempest known to these climates still more formidable: this is called by the Spaniards, a Tornado: as the former was seen arriving from one part of the heavens, and making a line of destruction; so the winds in this, seem to blow from every quarter, and settle upon one particular place with such fury, that nothing can resist its vehemence. When they have all met in their central spot, then the whirlwind begins with circular rapidity; the sphere every moment widens, as it continues to turn, and catches every object that lies within its attraction: this, also, like the former, is preceded by a flattering calm; the air is every where hushed, and the sea is as smooth as polished glass. All along the coasts of Guinea, beginning about two degrees north of the line, and so southward, lengthwise, for about a thousand miles, and as many broad, the ocean is unnavigable, upon account of these tornadoes, and intervening calms; among which, whatever ship is so unhappy as to fall, is totally deprived of the power of escaping. In the torpid repose of all the elements, the solitary vessel is obliged to continue, without a single breeze to assist the mariner's wishes, except these whirlwinds, which only serve to increase his calamities: this part of the ocean is therefore avoided.

In Egypt, a kingdom so noted for its fertility, and the brightness of its atmosphere; during summer, the south winds blowing from the continent, are so hot that they almost stop respiration; besides which, they are charged with such vast quantities of sand, that they sometimes darken the air as with a thick cloud. If they happen to continue any length of time, they produce epidemic diseases, and are often followed by a great mortality: in the summer also, a very dangerous wind prevails all along the coasts of the Persian Gulph, which the natives call the Samayel. This terrible blast, which was perhaps, the pestilence of the ancients, instantly kills those that it involves in its passage, whether beasts or men. It is said to frequently assume a visible form, and dart along the surface of the country, in a kind of bluish vapour. The natives, not only of Persia but Arabia, talk of its effects with terror; and their poets have not failed to heighten them, with the assistance of imagination. They have described it as under the conduct of a minister of vengeance; who governs its terrors, and raises or depresses it as he thinks proper. These deadly winds are also known along the coasts of India, at Necapatan, Masulipatan, and Petapoli; but luckily for mankind, the shortness of their duration diminishes the injuries that might ensue from their malignity.

But of all those terrible tempests that deform the face of our globe, and repress human presumption, the sandy tempests of Arabia and Africa, are perhaps the most terrible, and strike the mind with the greatest awe. To conceive a proper idea of these, we are by no means to suppose them resembling those whirlwinds of dust that we sometimes see scattering in our air, and sprinkling their contents upon our roads or meadows. The sand storm of Africa, exhibits an appearance

ance more like a troubled sea : as the sand is excessively fine, and almost resembles the parts of water, its motion entirely resembles that of a fluid ; and the whole plain seems to float onwards, like a slow inundation ; the body of sand thus rolling, is deep enough to bury houses and palaces in its bosom : travellers who are crossing those extensive deserts, perceive its approach at a distance, and in general have time to avoid it, or turn out of its way, as it generally extends but to a moderate breadth ; however, when it is extremely rapid, or very extensive, as sometimes is the case, no swiftness, no art, can avail ; the pilgrims and the merchants, their elephants, and their camels, with all their attendants, find one common tomb under the deluge of sand.

The rivers that have their source in the Torrid Zone, are the largest in the world ; and, as the rainy seasons there are periodical, the rivers have their stated inundations, which deluge whole countries, and drive the inhabitants to the hills : compared with these, the rivers near the Pole are but as brooks or rivulets : The mountains also on the equator, are the loftiest in the world ; much of the magnificence of the hills near the poles, is only seen through the deceptive medium of vapours and fogs ; the mountains on the line are known to rise three miles perpendicular above the bed of the ocean ; and those who climb them see meteors, which never appear in the plains below. When the traveller has ascended above the regions of storms, and, as is frequently the case, sees the clouds below him, and hears their thunders rolling quite beneath his feet ; from this airy height he beholds the rainbow, not merely like a splendid arch reared in the skies ; he sees the shining circle complete, sweeping down into the vallies, as far beneath his feet as it rises above his head ; from this romantic situation he sometimes sees the shadow of the mountain projected upon the body of the air or mist ; and on an opposite cloud, views his own image, as in a looking-glass, but surrounded as with circular rainbows. It is remarkable if there be a number of people in company, in such a situation each sees this beautiful and splendid illusion, with regard to himself, and not that relating to others ; or he sees only his own shadow, adorned as already described. The plains near the line are also vast and extensive, and he who traverses these, knows the benefit of a water-brook, and of the shadow of a rock in a desert and weary land.

3. *General Observations on the People.*] In contemplating these opposite extremities of climate, how naturally are we led into flattering reflections on the happy temperature of our own. In our happy land the mountains arise and improve our prospects ; their brows are clothed with verdure, and their summits collect enough of waters to cool and diversify the landscape below with rivulets and streams, and to answer the purposes of manufacture, navigation and commerce, without deluging the plains and sweeping off the inhabitants : here also the meteors put on a kind and friendly appearance ; the rain falls in refreshing showers, to fertilize the earth ; our snows afford a kindly protection to the ground from the rigour of more piercing frosts ; and, even our thunder and our tempests, serve to purify our atmosphere. On the banks of our rivers and in our forests, we need neither fear the winding serpent nor the lurking crocodile, the prowling

ing wolf, the shaggy bear, nor the still more fierce and cruel the spotted savages of the torrid zone. Our landscapes are enlivened with animals of a very different kind, the bleating of flocks and the lowing of herds, banish solitude from our walks, and sound the voice of plenty in our ears; they take their fodder from the husbandman, and give their dugs to the milk-maid; the horse rejoices in his strength, and retains some of his native fire, he paws in the valley, and bounds over the pasture; again, he hears the voice of his master, and gives his head to the reins; so beauteous are the prospects our land affords; yet, let it be remarked, a native of the Torrid Zone, or, of the cold Arctic regions, generally sees more beauty in his own native climes: this one skims along the desert upon his skates, or drawn by his rein-deer or dogs, without restraint he hunts, fishes and fowls; again, the tempest comes on, he betakes himself to his hut, and hugging himself in security, hears it scowling over his head: the African also delights to throw himself upon the exercises of the field; he endures the blaze of noon which would sicken an European, and encounters with animals of the forest, the glare of whose eyes might petrify one with horror; he plunges into the waters, and ventures singly to attack the monsters of the deep in their own native element; he evades the destruction of their yawning jaws, which would crush him to pieces and swallow him up; he plunges his knife into their bodies with mortal force; he fixes a noose round his enormous prey, drags it to the shore, and proclaims a feast to the village; or he draws an easy harvest from the soil he inhabits; and, stretched under the shade of the broad spreading plantain, or the fever-cooling tamarind, happy and at ease, and unenvious of other climes, he lolls away the severity of noon, or drinks the refreshing juice of the unnumbered fruits, of keen delicious taste, that wave over his head; or, that fanned by the breeze, are scattered about him in profusion. Thus, we see the pleasures of this life are more impartially distributed to the different quarters of the globe, than might at first be imagined, and as there are every where inconveniences to be experienced, it seems happy for man he generally prefers even of choice, those which his situation oblige him to inherit; this disposition seems not only to obtain with nations at large, but also among the different orders of men in particular countries: thus, the mariner braves the tempest and calmly endures the complicated hardships his way of life exposes him to; it is entertaining enough to observe him when safe into port; his perils with the remembrance of them, are together suspended; he looks about him on the toils of the landmen, he pities their sufferings, and, as if he had made a discovery, he feelingly remarks, one half of the world knows not how the other half lives: while on the other hand, the landmen hear the whistling of the winds, pity the poor sailor, and think how happy it is for them their lot has been cast upon land. Thus, the man of manual labour admires the patience and perseverance of the minute artist, the accomptant, and the man of abstruse learning; he recoils at the idea of pursuits so tedious, and drives with pleasure, his team a field; or contentedly toils with the hammer, the hatchet, or spade; while these lift up their eyes on the variegated landscape, and see in towns and villages, in every hedge and ditch, in every ridge and every furrow, the marks of labour and t

which they think it has been their peculiar privilege to escape. If we carry still farther the comparison between the different orders of men, it will appear of how little consequence it is, what may be a man's outward situation in life, and how the cause of pleasure or uneasiness mostly lies in the mind. The governors of the earth under the weight of their cares and sollicitudes for the welfare of the people, their countenances are sometimes seen brightened with smiles; while thoughtless individuals, in more humble stations, who find the protection of laws without much considering whence the benefit is derived, their brows are sometimes seen furrowed with cares and anxiety for the provision of the day.

SECTION X.

DIVERSITY OF ANIMALS.

To survey more generally the lower orders of the creation, we may imagine another sort of tour round the globe. In our view of the nations of the earth at large, we took our departure from the barriers of ice that surround the south pole; in this survey we may take our departure from the similar embarrassments that block up the much desired passage to the Pacific on the north.

On quitting the accumulated masses of ice that invest the Arctic regions, the business of whale-fishing rises on the view. When the sun gives to Europe the advantages of summer, the northern icy seas are involved in the glare of continual day; there we may meet with European vessels all engaged in this hardy adventure; and there the little Greenlanders every piece as busy in their smaller craft.

1. *Whale Fishery.*] For the encouragement of this business, the British government give a bounty to the vessels; it is regulated by the number of her boats: for every hundred ton the vessel is of burden, as measured by the officers of the customs, she carries a boat; to each boat there is an harpooner and a crew of six or seven; when they are arrived at a proper latitude they are all upon the watch, and some of them every now and then run up into the rigging for a better look out; one boat, or perhaps more, at the same time keeps rowing at a distance from the vessel; when a whale is discovered by its spouting up of water, the boat directly rows up to its side; the harpooner, who stands at the prow or bow of the boat, plunges his harpoon in its body; the boat immediately hurries off, for fear the fish should dash it in pieces by the flouncing of its tail; they then hoist a little flag, which when discovered on board, the signal is given, by calling out, *Full*; the other boats, which had been flung on the sides of the vessel equipped with all their tackle, and ready to be lowered into the water at a moment's warning, are immediately let go; in leap the crews, and row off with all haste to the assistance of the other boat. It is some time before the whale seems to feel the blow, and the animal continues for a while motionless on the water; the

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the shaft continues to pierce deeper and deeper into its body; at length, roused from its seeming lethargy, it darts down into the water with amazing rapidity; as it makes off, it draws after it with such velocity the line or cord of the harpoon, which is coiled up in the boat, that one man has to stand by with an axe ready to cut it if it should entangle, lest the boat should be overset, and they be all drawn down together; another with a mop, keeps constantly wetting the edge of the boat, where the line runs over, to prevent its being set on fire by the friction of the rope; in the mean time the boat pursues as fast as they can row, the direction of the line; the others follow, and the ship as well as it can, for there are but very few left on board, brings up the rere. If the fish is not mortally wounded, he can flounce about in the deep for an hour, and draw a line of two thousand fathom yards after it, in which case the other boats hasten up and add their lines, and sometimes it gets off by diving under an ice island, but commonly it is killed: the enormous animal has to come up to the top of the water to breathe; the crews are ready to renew their attacks; they dart their harpoon into its body; it again dives and rises again; they repeat their blows till the whale begins to be quite enteebled and spent, when they plunge their longer spears into various parts of its body; the enormous animal expires, and the ocean seems dyed with blood. When the whale is dead its belly turns upwards, the boats tow it away, and it is lashed alongside of the ship; the first work is then to go with a boat into its jaws, and to cut out the whale-bone bards very cautiously from its gums, with a long bending knife, and to draw them up at the captain. This enormous beast of the ocean, which measures from fifty to eighty feet in length, which was found to reach two hundred feet, when the Biscayneers, in the beginning of the fourteenth century, first led the way into these seas, and the animal had time given it to come to its growth; and which Pliny reports to be nine hundred and sixty feet long; we may very naturally suppose it must devour a great quantity of fishes; their throat however is so strait it would not admit a fish larger than a herring to enter; it lives upon little insects that are sometimes seen floating in clusters on the surface of the water; and though the whale is a gregarious animal, being found in great herds, it is upon this minute food it acquires fatness; for feeding upon these, teeth would be unnecessary; in place of these, it has in its upper jaw, the bards, blades, or, whiskers as they are called, for bruising or detaining its food; these compose what we call the whale-bone: they are of different lengths, like pipes of an organ; they shut into the under jaw, which is a little hollow, as into a sheath, they run it so along the tongue in a longitudinal direction. The great toothless or proper Greenland whale, answers this description; there are other sorts that have teeth, and pursue their prey, these are more mischievous and savage in their habits. When the best of the bards are cut out, to the amount of many hundreds, they cut off the blubber from the tongue, and after that proceed to strip the whole body of the fat, beginning both at the head and tail at once, and ending in the middle; the men that stand on the fish have sharp irons on their shoes to prevent them from slipping, they cut off the fins and tail to be converted into glue, and lastly, they strip off the fat on the middle part of its body, all the while

while removing the ropes wherein it is flung, as occasion may require. When the mountain of flesh is thus stripped of its fat, it loses its buoyancy; it is turned adrift, down goes the carcass or scrag into the deep, with a general and joyful huzza of the crew. In a few days it bursts and rises again, and serves to regale the fishes, birds, and bears with a profuse festivity. Some nations also are fond of the flesh of the whale; the people near the south pole, as well as those of Greenland, are fond of it to distraction; the French seamen are now and then found to dress and use it as their ordinary diet at sea; but the English and Dutch sailors say it is hard and ill-tasted. The value of a single fish is usually about one thousand pounds.

The method of the Greenlanders in taking the whale rather differs from that of the Europeans; both men and women compose the parties, the business of the women is to row, and to mend the seamen's jackets and the boats wherever they are damaged. For good luck in the expedition, they dress in the best manner they can, supposing the squeamish whale would escape, or if dead, that it would sink, if any one wore dirty clothes, especially those wherein he had handled a dead corpse. When they see a fish, they make boldly up to it, in their mens and womens boats, and strike it with several harpoons, to which bladders are hung, made of great seal-skins. These so encumber and impede the whale, that it cannot sink deep: when it is tired out, they dispatch it with their little lances. The men then creep into their sea jackets, which are made of seal-skin, and answer as shoes, stockings, gloves, coat, cap, and all in one piece: these they fasten tight on their heads and leap fearless on the fish and into the sea. The air in the jackets prevents their sinking, and enables them to stand erect in the water. They strip off the blubber, and cut out the bardsers. As every spectator may claim a share in the spoil, the scene is sometimes very disorderly: men, women, and children tumbling in heaps one over another, each with a knife striving to secure a portion of the enormous prize. They consider the acquisition as a happy circumstance of their lives: they encamp beside it, and seldom remove till they have left nothing but the bones.

2. *Polar Regions.* Besides the spouting of whales, and the business of taking them, which present an interesting scene in the icy seas, the number of animals, the sea fowl, seals and bears, which are seen there in great numbers, enliven those dreary solitudes, and animate the chilling prospect. How these can endure the severity of the climate, and seem to enjoy life in the regions of frost, will perhaps be one of the first of our wonders in contemplating on these creatures. They find a plentiful supply from the fishes of the sea, and are armed against the cold with fat and a warm outward covering. It is remarkable, that the furs or feathers of many of the animals of the cold northern regions of the earth, become white in winter: we might imagine, that, as the hair in the human species becomes white in old age, when there is a deficiency of the juices of the body, the severity of the cold had the same effect on these, and produced a premature or rather temporary old age, in their coverings; however this be, as we find in the different orders of the creation whether beasts, birds, or fishes, the attacks of the rapacious kind, are obviated by the means of evasion, or the superior fecundity of those they prey upon, and thus the different species

species are preserved from generation to generation. Perhaps these animals are white, that they may be less easily distinguishable from the snows, and consequently less exposed to the attacks of their enemies. The land animals that find subsistence in the cold regions of the north, are many, and of various sizes, from the hare to the elk or moose deer, which stately creature approacheth in size to the elephant, with its horns spreading out to the extent of ten or twelve feet, and from the cleanly little ermin to the ingenious beaver, the fox, the larger wolf, and the great white or Greenland bear, which reigns the unrivaled monarch in the icy mountains of Greenland and Spitzberg, as the lion is the tyrant of the burning deserts of Zaara. The great white bear three or four yards long, seems to have acquired strength, hardiness, and courage superior to the rest of its species, whether we consider them as found brown in the Alps, or black in the forest of North America. These awkward looking creatures are expert at climbing trees, in the hollows of them they sometimes make their dens, at the height of thirty feet from the ground. The Greenland bear robs the nests of fowls, and devours both the eggs and the birds; the deer also sometimes fall under his dreadful jaws. In the severity of cold he retires to his den, to pass away the winter in a sleep or torpid kind of state, living upon his fat: for in this time his exuberance of flesh is wasted away; when the winter is past, and he feels again the calls of hunger, he rouses from his lethargy to seek for his prey. In this famished state he snuffs at a distance the habitations of men; he sometimes ventures on an attack upon these, but is commonly killed, and becomes the food of those whom he attempted to destroy; sometimes, however, his opposers, some of them fall under his death-giving gripe: but it is from the water this formidable animal chiefly draws its sustenance; there it is seen floating on flakes of ice, many leagues from the land, in pursuit of seals and fishes, he even ventures to plunge into the sea, and attack the flouncing whale and the morse with its formidable tusks, in their own element; but he generally falls in the unequal conflict.

3. *Migrations of Birds.*] The variety of fowls and fishes that only appear on our shores or in our seas at particular seasons; their stated departures, and their regular returns, have employed much of the attention of the curious; these may be called animals of passage. Among fishes, the cod, the haddock, the whiting, the mackarel, the tunny, the herring and the pilchard are all of this kind. Besides quails and swallows, which seem at the close of our summer to depart for warmer climates, not without first conferring in close debate on the adventurous passage, and which, it is agreed, are seen at sea, both on their departure and return, in such prodigious flocks, as to appear like clouds on the horizon; among birds, we may reckon an innumerable quantity of water fowl, with woodcocks, and a variety of other birds that make their appearance here in the winter; these and the fishes generally visit us from the north. When uncultivated tracts of woods and marshes formed a considerable part of our islands, many species of birds which now migrate remained with us throughout the year: the great heron and the crane that have now forsaken these countries, in former times bred familiarly in our marshes, and seemed to animate our fens. Their nests, like those of most cloven-footed

water fowl, were built on the ground, the surrounding marsh defended them from carnivorous quadrupeds, and their own strength from birds of prey; but since these countries have become populous, and rural œconomy has encreased, by a long series of alarms, they have at length been obliged to seek, during the summer, some lonely habitation at a safe distance from every destroyer. These, and numerous other kinds, form those amazing flocks which annually repair to the dreary lakes and deserts of Lapland from the more southern countries of Europe. In those northern deserts, the lands of lakes and rivers, of swamps and mountains covered with thick and gloomy forests, where the ground remains moist and penetrable during the summer, the woodcock, the snipe, and other slender-billed birds, feed at their ease; while the web-footed birds find more than sufficient plenty of food from the number of insects which swarm there to an incredible degree: there they perform the duties of incubation at their ease, and encrease in security. We are not to be astonished, therefore, at the amazing numbers of fowl that descend from those regions at the approach of winter; numbers to which the army of Xerxes was but trifling in comparison; and which Linnæus has observed for eight whole days and nights to cover the surface of the river Calix. This migration from the north usually begins at the close of summer, when they quit their retreats, and disperse themselves all over the southern parts of Europe: on their first arrival they circulate round our shores, and, when compelled by severe frost, betake themselves to our lakes and rivers. Some, indeed, of the web-footed fowl, of hardier constitutions than the rest, abide the rigours of their northern climate the whole winter: but when the cold reigns there with more than usual severity, they are obliged to seek for more southern skies; so that the diver, the wild swan, and the swallow-tailed shell drake, visit our coasts but seldom, and that only when compelled by the severity of their winters at home. It has often appeared a matter of astonishment, how animals to all appearance so dull and irrational, should perform such long journeys, should know whither to steer and when to set out upon such a great undertaking. What then shall we think of the still more distant migrations of the fishes?

4. *Migration of Fishes.*] The unnumbered flocks of fowl that enliven the bleak and chilling prospects in the Arctic seas, are sometimes seen posting away to the southward; fishes are their prey, and these they are pursuing. The shoals of fishes that annually come out from under the ice at the pole, and migrate towards the south, seem numerous beyond conception, and various have been the conjectures on the cause of their migration. It has been thought that they breed there, that, the ice protecting them from the larger fishes, and the seas supplying a great quantity of the insect food, they multiply beyond expression; and that on account of their numbers, they are compelled to seek for other retreats, as with bees from a hive. It has been imagined they are all engaged in evasion or pursuit, that the less fry only visit us as they are chased upon our shores, the larger sort as they pursue. It has been conjectured, that they come on account of a deficiency of food in the icy sea; and, it has been concluded, perhaps most rationally, that their adventurous migration is for the purpose of depositing their spawn in our warmer seas; their welcome visits seem
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stated and regular; accordingly the season for cod, mackarel, whit-
ing, &c. are fixed and known; but how and when they return to the
icy seas, or whether they ever return or no, seems one of the won-
ders of the deep, which the most skilful ichthyologists have not disco-
vered. Of all migrating fish, we seem best acquainted with the ad-
ventures of the herring and the pilchard. The great colony of them
is seen to set out from the icy sea, about the middle of winter; com-
posed of numbers, that if all the men in the world were to be load-
ed with herrings, they would not carry the thousandth part away.
But, they no sooner leave their retreats, than millions of enemies ap-
pear to thin their squadrons. The fin-fish and the cachalot, swallow
barrels at a yawn; the porpus, the grampus, the shark, and the
whole numerous tribe of dog-fish, find them an easy prey, and desist
from making war upon each other: while the unnumbered flocks of
sea fowl that chiefly inhabit near the pole, watch the outset of their
dangerous migration, and spread extensive ruin. In this exigence
the defenceless emigrants find no other safety but by crouding closer
together, and leaving to the outmost bands the danger of being first
devoured; like sheep that always run together when frightened, each
finding some protection in being but one of many that are equally lia-
ble to invasion. The innumerable company first divide into two great
shoals, one body moves to the west, and pours down along the coasts
of America, as far as Carolina, and but seldom farther. In Chesape-
peak bay, the annual inundation of this fish is so great, that they cover
the shores in such quantities as to become a nuisance. Those that
hold more to the east, and come down towards Europe, endeavour to
save themselves from their merciless pursuers, by approaching the first
shores they can find; and that which first offers in their descent is the
coast of Iceland: in the beginning of spring, upon their arrival on
that coast, their phalanx, which has already suffered considerable di-
minutions, is, nevertheless, of amazing extent, depth and closeness,
covering an extent of shore as large as the island itself; the whole
water seems alive; and is seen so black with them to a great distance,
that the number seems inexhaustible. There the porpus and the
shark continue their depredations: and the birds devour what quan-
tities they please. By these enemies, the herrings are cooped up into
so close a body, that a shovel, or any hollow vessel put into the water,
takes them up without any farther trouble.

Their descent on our coast is later in the year, about Midsummer:
their arrival is plainly announced by the number of Gannet, the Gull,
the Shark, and the Porpoise. When the main body is arrived, its
breadth and depth are such as to alter the very appearance of the ocean;
it is divided into distinct columns of five or six miles in length, and
three or four broad, while the water before them curls up as if forced
out of its bed: sometimes they sink for the space of ten or fifteen mi-
nutes, then rise again to the surface, and in bright weather reflect a
variety of splendid colours like a field bespangled with purple, gold
and azure. Among the conjectures on the cause of that extraordi-
nary phenomenon the Aurora Borealis, some imagined it proceeded from
the reflection from these shoals, while others supposed it produced by
the flames of burning mountains, till later discoveries accounted for it
by electricity.

As the innumerable shoals fall on the coasts of our islands on the north, they are divided by the obstruction of the land, and pour down their supplies into our channels and bays, and along our opposite shores, they afford the natives a fresh and plentiful provision, and an article of commerce to remote and distant parts. As the fishes in the deep live by preying upon each other, the fecundity in the smaller kind seems amazing and incredible; a single herring, if suffered to multiply unmolested and undiminished for twenty years, would shew a progeny greater in bulk than ten such globes as that we live upon; generally whatever part of the ocean we survey scenes of pursuit and evasion, similar to those already described, present themselves to view, those with the largest mouths and gullet attack and devour the larger kind, those whose mouths are less lie in wait for the smaller fry, and even these chiefly subsist upon spawn; and flocks of fowl hovering on the waters dart upon their finny prey and receive their supplies; the natives also of almost every habitable coast upon earth partake of the grateful tribute.

5. *Tropical Seas*] In the tropical climates the Dorado is at once the most voracious, the most active, and the most beautiful of the finny region; its back is all over enamelled with spots of a bluish green and silver, the tail and fins are of a gold colour, and all have a brilliancy of tinct that surpasses the pencil of the artist; its eyes are large and beautiful and surrounded with circles that look like shining gold. In the seas where they are found, these fish are always in motion, and play round ships in full sail with ease and security, for ever either pursuing or pursued they are seen continually in a state of warfare, either defending themselves from the shark, or darting after the smaller fishes. Of all others the flying-fish most abounds in those seas, and as it is a small animal, seldom growing above the size of a herring, it is chiefly sought by the dorado, which being above six feet long, yet not thicker than a salmon, and furnished with a full complement of fins, cuts its way through the water with amazing rapidity; on the other hand the flying fish is furnished with two pair of fins larger than the body, and these are moved by a stronger set of muscles than any other: the dorado is seen in this active pursuit darting after its prey, which will not leave the water while it has the advantage of swimming in the beginning of the chase, but like an hunted hare, being tired at last, it then has recourse to another expedient for safety by flight; the long fins, which began to grow useless in the water, are now exerted in a different manner and different direction from that in which they were employed in swimming; by this means the timid little animal rises from the water and flutters over its surface for two or three hundred yards, till the muscles employed in moving the wings are enfeebled by that particular manner of exertion; by this time, however, they have acquired a fresh power of renewing their efforts in the water, and the animal is capable of proceeding with some velocity by swimming, still however the active enemy keeps it in view and drives it again from the deep, till at length the poor little creature is seen to dart at shorter distances, to flutter with greater effort, and to drop down at last into the mouth of its fierce pursuer; but not only in the deep does this little animal meet with its pursuers; the dorado or dolphin; the fowls of the air seem

seem also combined against it, so that its double powers appear to expose it a greater variety of dangers, for though it should elude from its enemies in the water, yet the tropic bird and the albatross are for ever upon the wing to seize it; thus pursued in either element, it sometimes seeks refuge from a new enemy, and it is not unfrequent for whole shoals of them to fall on shipboard, where they furnish man with an object of curiosity. These are but a few of the observations that have been made on the inhabitants of the sea, and it seems highly probable that man has drawn but a few from their watry beds, and that there are numerous tribes of them in the secret recesses of the deep, with whose manners and forms he is utterly unacquainted; there living for ages undisturbed, they may acquire dimensions of which we have no conception, and exceed what has been told of the kraken looking like an island, or of the sea-serpent with its long white mane, rearing its head or tail to an amazing height above the surface of the sea, and rolling its enormous folds on the water like great floating casks, or like an hundred dung heaps that lie in a row on a field to be ploughed, as far as these reports exceed the common belief. By help of the plummet we have learnt that the bottom of the sea like the land has its mountains and vallies, but the plummet only seems to answer comparatively in the shallows; the deep of the sea we cannot sound at all. Where the plummet can be used, and in still less depths where the eye can reach, the bottom of the sea presents very different appearances, as it is composed of rocks, clays, shells, sands, &c. In many parts near the coasts of America it is covered with vegetables, which make it look as green as a meadow, on which are seen thousands of turtles and other sea-animals feeding; in others, as along the coasts of Africa, in the Persian gulph, &c. but especially in the Red Sea, it is literally speaking a forest of submarine plants, and corals formed by insects for their habitations, sometimes branching out to a great extent, and at last, with the accumulation of the wreck the sea deposits upon them, forming lands and islands for the habitations of men, and bold shores or reefs of coralline rocks which are dangerous to navigation, but which maintain the acquisitions made from the ocean, while it heaves against them a prodigious weight of waters, which, being dashed into foam by the abrupt opposition, is called by the mariners the surf of the sea; these are the interruptions that make navigation so dangerous on the coasts of the East Indies and among the South Sea islands; with these however the natives are familiar, among these they have the art of swimming and navigating their little vessels where an European would be sure of being dashed to pieces.

6. *Africa.*] If we leave the tropical seas to take a view of the animals of the tropical countries, Africa seems to offer the greatest variety. In this quarter of the globe where many nations seem to lead a wild and roving kind of life, but little acquainted with the benefits of arts and associations, the savages of the forest seem to dispute the possession of their native wilds with the lords of the earth: among the rivals of man in those extensive deserts, we may reckon the lion, the tiger, with the other beasts of prey; the serpent and the crocodile, those fierce and cruel enemies; the elephant and the rhinoceros, formidable when attacked, and even the ape, which in some parts grows to the amazing length of six and seven feet, and proves his most

most formidable opposer: the small kinds of apes by their natural agility leave far behind the utmost exertions of posturermasters and dancers; the gigantic races of the ourang-outang are so strong that ten men would not be a match for one of them; they go together in companies, and if they happen to meet one of the human species remote from succour, they shew him no mercy; they even attack the elephant, which they beat with their clubs, and oblige to leave that part of the forest which they claim as their own: among so many fierce or formidable enemies we may be ready to wonder how the Indian or Negro can subsist, or prevent his country from being quite overrun by them; it is perhaps by their mutual contests, more than by any thing his feeble arts can oppose, that their numbers are thinned. At nightfall, when the raging heat of the day has subsided, and man prepares to go to his rest, the state of hostility begins, the whole forest then echoes to a variety of different howlings; the deep-toned roarings of the lion are heard like distant thunder, the shriller yellings of the tiger pierce the ear, the jackall, the hyena and other animals of the dog kind, pursue their prey in packs, and make the forests ring while they animate each other in the fatigues of the chase by their mutual cries; the serpents also of various kinds that begin their calls at the close of the evening, by their cries and hissing, make a much louder symphony than the birds in our groves in a morning; but the neighbourhood of a river, rivulet or lake is most especially the place where these hostile tribes draw up for the engagement. In those burning countries, where the sun dries up the water for hundreds of miles round, when what had the appearance of a great river in the rainy season becomes in summer one dreary bed of sand; in those countries a lake that is never dry, or a brook that is perennial, is considered by every animal as the most desirable acquisition, being inwardly parched by the heat of the climate, they traverse whole deserts to find out a spring, which when they have discovered, no dangers can deter them from attempting to enjoy it. On the banks of this little envied spot thousands of animals of various kinds are seen venturing to quench their thirst or preparing to seize their prey. The elephants are perceived in a long line marching from the darker parts of the forest; the buffaloes are there depending upon numbers for security; the gazelles relying solely on their swiftness for safety; the lion and tiger waiting a proper opportunity to seize; but chiefly the larger serpents are there upon guard to defend the accesses of the lake: not an hour passes without some dreadful combat; but the serpent, defended by its scales, and naturally capable of sustaining a multitude of wounds, is of all others the most formidable; it is the most wakeful also, for the whole tribe sleep with their eyes open, and are consequently for ever on the watch, so that till their rapacity is satisfied, few other animals will venture to approach their station. Thus dreadfully hostile are the beasts, and thus savage the scenes that give animation to and diversify the African landscape.

7. *Europe.*] In Europe civilization seems to have reduced the generality of the beasts of the field to the obedience of man, and to have banished those of the rapacious kinds; it is true in its most northern regions; and in the wilder parts of it on the south, as about the mountains of the Alps, wolves and bears still hold the possession of their gloomy

gloomy recesses, and sometimes make their depredations on the flocks or herds of the husbandman; and while even the fleet deer have been domesticated and enclosed in parks, some of the cow kind, unreclaimed by man, still run wild and bellowing in the forests. But it is in the wilds of Africa that all the tribes of the creation seem to enjoy their native freedom; there the horse, the ass, and the zebra, in unnumbered herds, scour across the desert and own no master's stall; there the cow, the sheep, and the goat bound over the hills, they wait not in those fruitful regions to be supplied with fodder at the hand of man, or to be penned up in folds: the flocks unite in their common defence, or seek safety in flight.

8. *Asia, Islands of the Pacifick.*] The wilds of Asia on the south seem to present a picture similarly savage, and the animals which compose it are found extended on the north into Tartary and China. The islands of the Pacifick are unfurnished with these creatures.

9. *America.*] In America, however, we meet with some of these formidable animals, but it is remarkable they generally seem feeble and diminutive if compared with those of Africa and Asia. The Tapir bears some resemblance to the mule, it chiefly resides in the water, but comes ashore to graze on the banks, and may be considered as the river horse of America; but what is its strength and what are its dimensions when compared with behemoth or the hippopotamus of the Nile Niger or Zaara, above seven feet high and of a proportion every way fitted for strength, whose jaws open about two feet wide, whose fore teeth are above a foot long, whose disposition however seems as inoffensive as its force is prodigious, and which seldom ventures from the river side but when pressed by the necessities of hunger, or of bringing forth its young? There seems still a greater disproportion between the camel and the American lama. The lion of Bilidulgerid is said to be nearly five feet high, his outward form seems to speak his internal generosity; his figure is striking, his looks confident and bold, his gait proud, and his voice terrible; when he prepares for the combat he summons up all his terrors, he then lashes his sides with his long tail, which alone is strong enough to lay a man level, he moves his mane in every direction, it seems to rise and stand like bristles round his head, the skin and muscles of his face are all in agitation, his huge eye-brows half cover his glaring eye-balls, he discovers his teeth which seem rather formed for destruction than chewing his food, he shews his tongue covered with points, and extends his claws, which appear almost as long as a man's fingers. The tiger of Bengal, of still more untameable ferocity, though not so tall as the lion, has sometimes been known to measure twelve feet in length without including the tail, while the cougar or tiger of America seldom exceeds three, and the lima, which has received the name of the American lion, is a creature still inferior, being extremely cowardly, climbing trees for its prey, and subsisting rather by its cunning than its courage. The difference seems less considerable between the jaguar or panther of America, and the leopard or great panther in Asia, and between the lynxes that are chiefly found in the northern parts of Europe, Asia and America; but there are some animals that appear peculiar to America; these seem almost wholly destitute of the power of defence, their figure ungainly, their limbs ill proportioned.

proportioned. Some among them, as the little ant-bear and the sloth, appear so miserably formed as scarce to have the power of moving and eating, they seem only capable of maintaining their languid existence in the most desert solitudes, and hence perhaps they have been totally extirpated in those countries that are more populous or more largely furnished with the fiercest beasts of prey. Why the quadrupeds of America are generally found less than those of Asia or Africa, may very naturally excite our enquiry: perhaps they are the progeny of some feeble kinds that were beat out of the southern parts of Asia; or that wandering to the north through scarcity of prey, or from any other cause, in some generations became diminished through the coldness of the climate, and passing over to America on the north, in its cooler regions, have never regained their original magnitude, or that which distinguishes the same species of savages in the torrid wilds of Africa and Asia; or perhaps they are of a different species, and their kinds are extirpated in the more populous parts of the world. The serpent, however, and alligators or crocodiles in the warm rivers and swamps of the New World, seem pretty much the same with those of the Old; and those animals that are fond of the most cold and northern situations, as bears, deer, and wolves, seem exactly the same all round the Arctic Pole.

We might close this little sketch of the lower orders of the creation, and our desultory course through the different quarters of the globe, by observing, that the birds, which are animals of passage and unconfined to soils, maintain their utmost magnitude and ferocity in the regions of America, as we find especially in the enormous condors, which spread an expanse of wing of twelve feet from tip to tip, whose beaks are so strong as to pierce the body of a cow, and two of these tremendous animals are able to devour it; they render the mountains terrible to birds, beasts and men; they sometimes descend from their heights to spread desolation and terror in the lower grounds, and when their prey happens to fall them upon land, they come down to the sea shore to feed upon dead fish and such other nutritious substances as the water throws up: That in America also birds of the smallest size are found, as the little humming bird, which inserting its bill into the cup of a flower and sucking out the juices, the powder or the pulp, while it keeps fluttering over it, seems to approach in size and manner to the bee: That the birds of the torrid regions are remarkable for the splendor and beauty of their plumage; and that those of the temperate zone excel in song.

SECTION XI.

MANNERS OF ANIMALS.

However, before we quit this entertaining part of geography, the view of the different tribes of the creation, which the life of man, and all the volumes he could write, would never fully unfold; it may

may perhaps be interesting just to take a cursory survey of their habits or manners, as they are influenced by their subjection to or independence of man, and by their associations or animosities with each other.

1. *Care of their Young.*] All the pursuits of the whole brute creation seem naturally to be directed to the preservation of themselves, and the propagation of their species; and every deviation from these appears to be but sport or a temporary relaxation from the business of their lives. It has become a proverbial saying, that self preservation is the first law of nature; the care of their young, however, seems happily with some tribes of animals, a business of more importance than even the preservation of themselves. To defend these they seem to brave every danger. The rapacious kinds, whether beasts or birds, as the lionsess and the eagle, acquire new terrors, and become more than commonly formidable; on this important occasion, they undauntedly attack those that annoy them; they prowl about for supplies for their savage and hungry brood, and bear away, to the nest or den, their mangled prey, yet throbbing with life, thus early accustoming them to habits of slaughter; even the weaker and more harmless races of animals seem to assume new habits, and acquire a courage and a consequence unfelt before. The timid creature that would at another time fly in an agony of distress, on a distant appearance of danger, stays by its young till their enemy is close upon them, or it meets his approach and ventures to give him battle, or throws itself in his way, and draws him on to follow it, thus decoys him to a distance from its infant treasure, then springs off at once, and mocks his vain pursuit. This latter description of temporary courage and little arts of elusion, seems to hold with most of the feeble kinds of birds, and with the timid deer and others of the fearful beasts of the field. The amphibia and fishes seem mostly a heedless tribe of creatures leaving their spawn or eggs in the water or on the banks to be brought forth without their assistance by the heat of the sun's tepid beams: some, however, seem possessed of finer feelings; among fishes, the whale, with some others, shews a tender concern for its young one, grasping it in its fins, and bearing it off from the attacks of their enemies; and while the crocodile, among the amphibia, lies under the imputation of thinning the numbers of its own young, in common with their numerous other devourers; the open-bellied crocodile is thought, like the opossum of the West Indies, to afford a shelter to its young ones, when in danger, in that extraordinary cavity or bag, which it has under its belly, with its opening outwards: it has been thought that it brings forth its young ones alive, like the higher races of animals, and that it nourishes them in its false belly, when they are yet too feeble to provide for themselves. In these anxious solitudes for providing for their young, the male among quadrupeds seldom bears a part; he seems oftner to prove a formidable enemy. Thus, among those of the rapacious kinds, the lionsess and tigress, with the greatest caution, conceal their retreats from the males, to prevent them from devouring their cubs. It is otherwise with the feathered tribes of the creation, among them we may often see a beautiful lesson of domestic fidelity. The male shares the labour of building the nest, he industriously supplies provision to the hen, while

while performing the duty of incubation; or he takes her post while she flies abroad in quest of food for herself; while she is on the nest he also acts the part of a trusty centinel, and cheers her with a song, with a note that informs her that no danger is at hand. If an enemy approacheth, his voice is suddenly stopt; and this is the signal that puts his mate on her guard. When the era which fulfils their patient expectations, and compleats their happiness has at length arrived, and the callow brood bursts from the shell, the raptures of the male seem not less than those of the mother. They both seem, at that season, transported with pleasure: every action testifies their pride, their importance, and tender solicitude.

This description of connubial fidelity seems generally applicable to all the tribes of the fowl of the air, excepting such as the cuckoo, that destroys the eggs of others, and leaves its own in the place; and those of the poultry kind; with these the tedious duty of incubation, and the care or protection of the young clutch, devolves entirely upon the hen, whose concern at this season is to avoid the cock as an enemy. Even the drake, in its state of liberty or wildness, is sometimes known to supply the down from its breast for lining the nest, when that of the duck has failed, by its having been often disturbed while building.

The parental affection seems happily to hold no longer with the tribes of the brute creation, than the wants of their tender offspring require their care and protection: when the young ones are fledged, and prepared for flight, the parent birds bring off their little charge, and shew them the place and manner of feeding; they reconduct them to the nest, and backwards and forwards they practise them in this way till they appear able to provide for themselves; they then again lead them out, and leave them with the wide world before them; all connexion seems to be at an end, and every one singly or uniting in flocks, prepares to shift for itself. These manners are observable among the little songsters that make vocal the hedges round the habitations of man. Those of the rapacious kinds that build their nests on inaccessible cliffs and in distant solitudes, as the eagle and the falcon, though they mix not in flocks like other birds, yet live in pairs from year to year, with strict fidelity, and mark out a rock for themselves, not allowing others to encroach on their territories; their ferocious habits soon seem to overcome the feelings of the parent, they drive off their young at an early period to shift for themselves, and when disappointed of their prey, they sometimes kill them in a fit of fury. But of all the feathered tribes of the creation, those of the pie kind seem by far the most industrious, the most faithful, the most constant, and the most connubial; they live in harmony with each other, and cherish their young to the last. With respect to man, they seem rather noxious than beneficial; he often considers them as a chattering, noisy, troublesome sort of neighbours, that only approach him, like robbers, to commit depredations on the fruits of his labours; but with respect to each other, no class of birds are so active, so ingenious, or so well fitted for society. In fact, they sometimes live in societies; and in these are general laws observed, and a kind of republican form of government established among them, they administer castigation to refractory individuals, and join together to repel the strangers that come to settle among them; if the emigrants however can fight their way, get

get a nest built in their territories, and once enter on the duty of incubation, they are then considered as members of the state, and remain in undisturbed possession of their acquisitions. Of the pie kind are reckoned the magpye, the raven, the crow, the woodpecker, the parrot, &c. And of this kind is considered the swallow of ternate, or the beautiful bird of paradise, which some have described as an inhabitant of the air, living only upon the dew of heaven, and never resting below : as such it appears in paintings or japanned wares, without either feet or wings, but with a long bushy tail, and as such it is presented to us in Europe, when stuffed or preserved, where we must not look for the remains or stumps of its limbs, for fear of ruffling or tearing off its beautiful plumage. Time, however, has discovered that this bird not only has legs but very strong ones for its size, that the natives of the Molucca islands, of which it is an inhabitant, being very little studious of natural history, and perceiving the inclination the Europeans had for this beautiful bird, carefully cut off its legs as its greatest deformity, before they brought it to market, and then asserted it had none. The birds of paradise, which in flocks enliven with their brilliant plumage the spicy forests they inhabit, being seen, like the swallow, almost ever on the wing, may appear some apology for European credulity. The phoenix of Arabia, which almost every body has heard of as a bird which lives for a thousand years, then makes itself a bed of spices, as a nest and funeral pile, commits itself to this, takes fire, and expires ; another phoenix springing out of its ashes, to be, contrary to the order of the creation, a solitary inhabitant of the globe, and the only one of its kind for another thousand years. Though it may in these enlightened days seem superfluous to contradict this fabulous and unnatural history of the phoenix. It has been gravely treated of in former times, and this romantic creature of the imagination been considered as a bird really existing.

Birds vary in building their nests, according to the different temperature of the climate, the duties they have to perform, the materials they have to work upon, and the enemies they have to encounter with. Where the eggs are numerous, it is then incumbent to make the nest warm, that the animal heat may be equally diffused to them all. Thus the wren, and all the small birds, make the nest very warm : on the contrary the plover, that has but two eggs, the eagle, and the crow, are not so solicitous in this respect, as their bodies are capable of being applied to the small number upon which they sit. Some birds that with us make a very warm nest, are less solicitous in the tropical climates, where the heat of the weather promotes the business of incubation : on the other hand, the water fowl, that with us make but a very slovenly nest, are much more exact in this particular, in the colder regions of the north. They there take every precaution to make it warm ; and some kinds strip the down from their breasts, to line it with greater security. They vary their nests, according as they find a supply of materials. The red-breast, in some parts, makes its nest with leaves, where they are in greatest plenty ; in other parts, with moss and hair. The swallow with us builds its nest with mud and grass ; on the coasts of China and Coromandel, from the foam of the sea water dashing against the rocks, they gather a certain clammy, glutinous matter, perhaps the spawn

of fishes; of this they build their nests: These the Chinese pluck from the rocks, and bring them in great numbers to the East Indies to sell. They are esteemed there as great delicacies, and, when dissolved in chicken or mutton broth, preferred far before oysters or mushrooms. But these varieties seem trifling, when compared with those that the fear of an enemy produces. The penguin, a bird of far more waddling gait than a duck, with its body so heavy and its wings so short, that it can scarcely fly at all, while it seems better adapted than any other fowl for living in the water; like most other water fowl in solitary parts, a small depression in the ground serves it for its nest: it is otherwise where it has been disturbed; in some parts it burrows in the ground like a rabbit; in others, the awkward creature makes a shift to clamber to the ledge of a rock, where it may nestle and bring forth in security. The females lay their single egg in a common nest, and sit upon this their general possession by turns; while one is placed as a sentinel to give warning of approaching danger. The woodpecker, that with us bores itself a hole for a nest in a soft or decayed tree, with its sharp strong beak, has with other birds recourse to very different arts in the tropical climates. In the forests of Guinea and Brazil, the monkey and the snake are the bird's greatest enemies. The monkeys inhabit the tops of the trees; the larger snakes twine round the trunks, and carry on unceasing war with each other. To avoid these formidable and mischievous enemies, the wary little archibuteo flies busily about in quest of a fine kind of moss; this it first glues, by some viscous substance gathered in the forest, to the extremest branch or leaf of a tree; then building downward, and still adding fresh materials to those already procured, a net is formed, that depends, like a pouch, from the point of the branch; the hole, to enter at, is on the side, and sometimes below like a funnel or chimney. The interior parts, where their little treasure is deposited, are lined with the finer fibres of the same substance, which compose the whole. The nest hangs before the spoilers, a tempting object, which they can only gaze upon, while the gaily-plumed birds fly in and out, without danger or molestation from so formidable a vicinity.

2. *Animosities, Associations.*] As, according to the present constitution of this desolated world, while some harmless creatures live on vegetable fare, others, of more savage nature, prey upon these; so wherever we turn our eyes upon living creatures, whether beasts, birds, fishes or insects, we generally see in their habits or manners, the rueful picture of violence and evasion, from the lion in the forest, to the cat on the hearth, and from the eagle on its airy cliff, to the spider in the wall, tearing the helpless to pieces. The smaller kinds however, and those that are most exposed to be preyed upon, seem by far the most fertile; and thus their kinds are preserved from generation to generation, notwithstanding the slaughter they are continually exposed to.

The associations among the brute creation, except those for preserving their species, seem to be but few; those of the most rapacious kinds, as the eagle and the hawk, and the lion and the tiger, with all the other quadrupeds of the cat kind, seem averse from society, and like robbers, enjoy the fruits of their violence in solitude. Graminivorous animals, both beasts and birds, seem more socially disposed; they are generally seen

seen feeding together in herds and in flocks; dogs also seem naturally to unite, in packs, in hunting their prey. Animals of the whale kind combine to hound other fishes into one another's jaws, or into situations where they can easily devour them. In the pigeon house and the rookery we see a sort of society; and, even among insects, in the republic of ants, and the monarchy of bees, a kind of established polity. But of all the associations that exist among the tribes of the brute creation, that of the beavers seems the most ingenious, the most orderly, and the most nearly approaching to the manners of the most refined nations of mankind. The beaver is somewhat shaped like a rat, about two feet long, and nearly one foot high: its fore feet supply the place of hands, as in the squirrel; it has membranes between the toes on the hind feet, and a broad, flat and scaly tail for the purposes of swimming. The beavers begin to assemble about the middle of summer, to form a society that is to continue for the greatest part of the year; they generally form a company of above two hundred members. The place of their meeting is commonly by some water side; if it be a lake in which the waters are always upon a level, they dispense with building a dam; but if it be a running stream which is subject to floods and falls, they then set about building a dam or pier, that crosses the river and forms a dead water; this dam or pier is often fourscore or an hundred feet long; ten or twelve feet broad at the base, and two at the top; the declivity is on that side opposed to the water, the other side of the dam is perpendicular like a wall: the part of the river over which this dam is usually built, is where it is most shallow; and where some great tree is found growing by the side of the stream; with no other instruments but their teeth, they soon lay this level, and in such a way that it always falls across the stream, and serves as the principal beam of their fabric; with their teeth also they cut down stakes of different lengths, and drive them into the ground, at a small distance from each other, intermingling with them those that are smaller and more pliant, and stopping all the cavities both within and without with clay, so that the water is duly confined. They continue to raise the dyke in proportion to the elevation of the water, and the plenty which they have of it: they are conscious likewise, that the conveyance of their materials by land would not so easily be accomplished as by water; and therefore they take the advantage of its increase, and swim with their mortar on their tails, and their stakes between their teeth, to the places where there is most occasion for them. If their works are, either by the force of the water or the feet of the huntsmen, who run over them, in the least damaged, the breach is instantly made up; every nook and corner of the habitation is reviewed, and, with the utmost diligence and application perfectly repaired; but when they find the huntsmen visit them too often, they work only in the nighttime, or else abandon their works entirely, and seek out for some safer situation.

When the dyke or mole is compleated, the solidity of which is still more astonishing than even the size, their next care is to erect their several apartments, which are either round or oval, and divided into three stories, one raised above the other; the first below the level of the causey, which is for the most part full of water; the other two above

above it. This little fabrick is built in a very firm and substantial manner, on the edge of their reservoir, and always in such divisions or apartments as above-mentioned, that in case of the water's increase, they may move up a story higher, and be no ways incommoded. When they have built their lodges, they mix up some clay and dry grafs together, they work it into a kind of mortar, and with this, by the help of their tails, they plaister all their works, both within and without. Eight or ten beavers live in one house. If the number of inhabitants increase to fifteen, twenty or thirty, the edifice is enlarged in proportion : it seems, even four hundred beavers have been discovered to reside in one large mansion-house, divided into a vast number of apartments, that had a free communication one with another. The beavers, during the summer, are perfect epicures ; and regale themselves every day on the choicest fruits and plants the country affords ; in winter they eat the wood of the birch, the plane, and some few other trees. They have magazines or wood yards wherein they lay up their winter's provision ; in procuring of this, each takes a different way, and has his proper walk assigned him, in order that one labourer shall not interrupt another in the prosecution of his work : the smaller branches are brought home by the individuals singly, that gnawed them down ; those of larger dimensions are conveyed to the store-house by a whole body of the beavers. These logs are not thrown up in one confused irregular heap, they are piled up one across another, with intervals between them, in order to take out, with the greater facility, but just such a quantity as they shall want, for their immediate consumption, and those parcels only, which lie at the bottom of the water, and have been duly steeped. This timber is cut again in small pieces, and conveyed to one of their largest lodges, where the whole family meet to consume their respective dividends, which are made impartially, in even and equal portions. Sometimes they traverse the woods, and regale their young, with a more novel and elegant entertainment. Such is the picture of brutal society, the manners of these little animals, present in the remote parts of America, and where, undisturbed by man, they have an opportunity of associating together ; on the other hand, where he makes his appearance, and the dread of his presence breaks up the society, the timid little creatures each individually strives to shift for itself. Their talents are entirely repressed by solitude. The beaver, when alone, has but little industry, few tricks, and it is without cunning sufficient to guard it against the most bungling snares laid for it by the hunters.

3. *Influenced by the Human Race.*] We may now close this sketch of the earth, by considering the different orders of living creatures, as they are particularly influenced by the domination of man, or as they call forth his arts, to subdue them to his service, or to suppress their hostilities ; and in this interesting view the scene is highly diversified. It has been imagined, there is something peculiarly august in the upright figure of man ; something that naturally strikes the most savage beasts of the forest with awe, and teaches them submission to the lord of the earth ; it is found, however, he owes more of his superiority to his intellectual powers, than to any advantages he derives merely from his outward form ; and, accordingly those animals which have

have not yet become acquainted with his prowess, and which have only been accustomed to engage with creatures of inferior strength, they meet his first attacks with the most hardy presumption. The albatross and the whale only flee from his presence when they have learned, by fatal experience, the superiority of his arms; the bear in the most solitary regions of the north, and the ferocious animals of the unpeopled deserts of the torrid zone, at first meet man without fear; thus the lion of Zaara, accustomed only to conquer, ventures singly to attack a caravan, consisting of thousands, and, when repulsed by numbers, and obliged to retreat, he still continues to face his pursuers; it is otherwise in the most populous parts of Africa, where he has been often coursed down by the hardy inhabitants; there his dread of the human kind is so great that the sight of a child puts him to flight. It has been remarked, that, in all countries, as man is civilized and improved, the lower ranks of animals are repressed and degraded; either reduced to servitude, or treated as rebels, all their societies are dissolved, and all their united talents rendered ineffectual; their feeble arts quickly disappear, and nothing remains but their solitary instincts, or those foreign habits which they receive from human education; those whose savage or timid natures admit not of domestication, seek, in the most distant recesses of the forest, or the most impregnable fastnesses of the mountains, protection from an enemy, whose superior sagacity discovers their little arts, and finds out their retreats; who entraps them with his snares when not present himself, and who undiscovered slays them at a distance. Those which have been brought to yield to domestication or servitude, have lost, with their native spirit, much of their original habits and forms: we may perhaps dispute however, whether domestication has invariably degraded the lower ranks of animals; some, under the care and protection of man, seem to have increased in size, in strength and in swiftness; and those that he has treated with familiarity and affection, as the dog and the horse, seem to have acquired a courage and a generosity they never knew in the forest: thus, horses and dogs, animated by the presence and shouts of the hunters, are brought to attack and pursue the most formidable animals; even the tremendous lion, the glare of whose eyes would have petrified them with horror, or made them to flee in an agony of distress, when in a state of wildness, they freely encounter when encouraged by the company of man.

It seems indeed, that man maintains much of his dominion over the headlong tribes of the creation, and effects many of his greatest works and designs, by the help of these two faithful domesticks: in the tending of flocks and tilling the ground they alleviate his labours; and, in countries where he combats with the hostile kinds of animals, or draws much of his subsistence from the capture of the timid creatures, that run wild in the forest, in his horse and his dog he finds willing partners in his toils: these however are far from being the only sharers in his labours and pursuits; and our conceptions of what he has effected, in subjecting the tribes of the brute creation to his service, will be very confined and inadequate, if we take our idea merely from what we have an opportunity of observing in our own particular age and country; in fact, there does not appear

to be any kind of animals, but what he has brought to feel his superiority ; they have been made not only to supply his necessities, but also to furnish him luxuries and superfluities ; and what is most extraordinary, he has made almost every kind, except fishes and insects, yield to his orders, and while living perform him duties, or contribute to his amusements. Apes have, in Africa, been made useful domesticks, and set to pounding at a mortar, and to carrying water ; the elephant and the rhinoceros have not found protection in their ample size and prodigious strength, they have been taken and tamed : crocodiles have been drawn from their watry beds, and bred up tame in ponds, for the diversion of the kings of Africa and Siam ; lions have been made to draw the triumphal chariots of conquerors, and tigers to protect those flocks which, in a state of wildness, it was their support to devour. The Asiatic hunters have brought even the panther, the ounce, with others of the spotted savages of the tropical climates, to assist them in the chase, as the ferret is used in catching rabbits ; the otter, when taken young, is taught to fish for its keeper, and amply rewards him for his trouble in rearing it. It is not the cat alone that has been domesticated, and employed in the purpose of ridding houses of vermin ; serpents have been kept for similar purposes, and several little animals of the weazel kind ; of these the boldest and most useful is the ichneumon of Egypt ; the ichneumon, with the strength of a cat, has more instinct and agility, a more universal appetite for carnage, and a greater variety of powers for procuring it ; rats, mice, birds, serpents, lizards and insects, are all equally pursued ; it attacks every living thing which it is able to overcome, and indiscriminately preys on flesh of all kinds ; its courage is equal to the vehemence of its appetite ; it fears neither the force of the dog nor the insidious malice of the cat, neither the claws of the vulture nor the poison of the viper ; it makes war upon all kinds of serpents with the greatest avidity, seizes and kills them how venomous soever they may be ; and we are told that when it begins to feel the effects of their rage, it has recourse to a certain root which the Indians call after its name, and assert to be an antidote for the bite of the asp or the viper : this animal is found in great numbers in all the southern parts of Asia, from Egypt to Java ; and it is also found in Africa, particularly at the Cape of Good Hope ; it is particularly serviceable to the Egyptians in discovering and destroying the eggs of the crocodile ; it also kills the young ones that have not as yet been able to reach the water ; and, as truth goes often hand in hand with fable, it hath been reported, that it even enters the mouth of the crocodile when it finds it sleeping on the shore, boldly attacks the enemy in the inside, and at length, when it has effectually destroyed it, eats its way out again.

Birds, from their power of flying up on high, we might suppose quite beyond the reach and dominion of man ; besides the fowls however which he has tamed as provisions for his table, and those that in the cage amuse him with their notes, he has reduced to his obedience even the eagle, the falcon and the owl, and taught them to assist him both in fowling and the chase : in like manner also among the water fowl, he has taught the pelican and the cormorant to supply him with fish as well as themselves.

To tell the arts whereby man has reduced the many and varied tribes to his service, to describe the various manners of capture he makes use of, whether he takes them by stratagem, hardiness or force, would require whole volumes, and unnumbered are the treatises that have been wrote on these subjects. We have already seen how he calls in one kind of animals to help him in pursuit of another : there is another method he practises with equal and greater success, this is by setting tamed animals to allure wild ones of the same species into the snares he has laid for them; in this manner ducks are taken by thousands in decoys; and in this manner the elephant, wisest of brutes, is reclaimed from the forest, and made a willing servant, attached to its keeper, intelligent in understanding, and faithful in obeying him.

4. *Provefs of man.*] Thus we see that all the lower classes of animals, whatever may be their powers when opposed to each other, are brought to feel the superiority of man. This lord of the creation maintains his dignity among living creatures, alike in the cold frozen regions of the north, and in the hot and burning deserts of the torrid zone. The savage and hostile tribes of creation—they may for a while hold his empire in dispute, but their opposition and their force seem but to serve to awaken his ingenuity, and to call his powers into action, rather than to repress them. Those that fall under his protection from the earliest period of their lives, as the tame ox and ass, are through long domestication brought to know their owner, and their masters crib; upon those that he brings roaring or bellowing from the forest, and upon those that he brings down screaming from their airy flights on high, he at first imposes the severity of flogging, watching and fatigue, to suppress their savage habits and reduce them to obedience; he holds at his own distribution the rewards of their services; he supplies them with their food, and secures their attachment; or he scours with alacrity the wilds they inhabit, deals death among them, and converts their spoils to his uses; the roaring of the ocean stays not his pursuits; he draws the creatures from the deep; and, with a hardiness still more desperate, he climbs the craggy cliffs, or, lowered from the airy tops of tremendous precipices that overhang the waters, he seeks the nests of the unnumbered water-fowl that fluttering, chattering, croaking or screaming, fill the air with their cries. From dangers of this kind he, in many parts of the world, draws the principal means of his support; and as labour produces health to those who have to endure it; so those whose situations expose them to particular hardships, acquire peculiar habits of courage, and agility, become fitted for, and partial to, their own particular situation, and enjoy it, without repining at the seemingly happier and easier lot of others.

P A R T IV.

SUCCESSION OF EMPIRES.

SECTION I.

MOST REMOTE ANTIQUITY, JEWISH NATION, &c.

THE melancholy retrospect that history affords of the calamities of past ages has been much augmented through the depraved taste of men, who have in all ages, since the practice of war was introduced upon earth, unhappily lavished the bewitching reward of praise on the destroyers of men; and the eager desire for false glory, which has stimulated poor mortals to their mutual destruction, and necessarily swelled the historic page with rueful feats of arms, seems to have almost precluded from the records of antiquity any account of the sweet fruits of peace: nations have seldom desired to be accounted an inglorious people living in quietness and ease, while their exploits in battle have been extravagantly delineated. The good monarch distributing benefits to his people; the pious philosopher spending his time and himself for the good of mankind; the husbandman, mechanic and physician, with all their useful labours, these cut but a poor figure in the annals of time; while the hero, the man of war, rises glaringly to view, mounted on trophies the wreck of nations; hence history, to a feeling mind, will appear little more than a catalogue of human woes. In one page we often see thousands devoted to the sword, and the victor's triumph raised at an expence of blood which a remote nation mourns with floods of tears; while peace, fixed only to particular happy spots, as Arcadia and the romantic golden age, the sweet intervals of peace, which all nations have probably enjoyed a greater share of than a meer superficial view of history would encourage us to believe, these have often been passed over in silence and buried in oblivion.

1. *Antediluvian World. Flood.*] In the beginning were created the heavens and the earth: when the order of things was sufficiently established for the reception and support of living creatures, then were the animals created, and lastly man. In a state of innocence our

our first parents lived, and were happy, till by their disobedience they lost their peace, and were driven from their blissful mansions in the Garden of Eden into the wide world, now rendered a wilderness by their lamentable fall. The offspring of this couple soon proved themselves the branches of a depraved stock; and Adam with his comfort lived to see among other melancholy effects of their woeful declension from the truth, the untimely death of the pious Abel, slain by the hands of his brother the wretched Cain.

Not two thousand years after the creation, the earth was corrupt and filled with violence, and it was decreed that man should be destroyed. Noah and his family only survived the flood, of all men living; they, with the creatures after their kind, were preserved in the ark from the devastation of the universal deluge.

2. *Origin of different Nations and Tongues*] But the offspring of Noah seem to have soon forgot this awful judgment; they attempted to build a city on the plain of Shinai, and a tower whose top might reach unto heaven, and to establish to themselves a name; their vain designs were frustrated, their language confounded, and they themselves scattered over all the face of the earth. This seems to have been the beginning of the different nations; tongues and people upon earth. If it were possible now to take a retrospective view of the world at that day, it appears likely that we should see it peopled in parts widely remote from each other, by a number of families shut out from all communication with each other, still more by difference of language than by distance of place*.

Languages and people appear to have continually fluctuated since mankind first became divided into nations. Sometimes neighbouring nations have, from their vicinity, naturally commixed in speech and manners; often they seem to have rudely jumbled together in the distraction of war, sometimes a people has been rent in pieces by intestine divisions, at others they have been obliged to bow to a foreign yoke; generally the conquerors have imposed, together with their government, their language and their manners, yet sometimes the rude ravagers of a refined and ingenious people have thought it worth their while to copy the manners and improvements of the vanquished.

3. *Remarks*] Were all the records of history complete in information, and to be depended on as true, to declare the complicated revolutions of all nations, either by description or delineation, would be a task as perplexing to execute as tedious to peruse: but from adulation or envy the deeds of men have been often misrepresented in their own time, and faithful historians could only afterwards glean up the truth by probable conjecture. In this work a general view of the succession

* It appears probable that these would be in a few generations, according to their different situations on the globe, food, manner of living, &c. constitutionally impressed not only with different complexions, features, &c. but with concomitant characteristics of genius and temper; this idea, however general, observation seems to warrant. As this people all the world over gave way to evil dispositions, there would be a danger of posterity being hurt by the force of example, and as they yielded to the principles of benevolence, future generations would derive salutary benefits from their virtuous education, and hence the most striking features in the characters of many nations, as savage or humane, courteous or rude, were probably derived.

succession of only the principal empires of the world is attempted; the Jewish history is rather more minutely entered into than others, as being the most extraordinary and important of all nations, and the only one that can be implicitly relied on as perfectly true. Among other nations we find the people warring for extensive dominion, for triumphs and worldly praise; this people we find miraculously used to the punishment of wicked and idolatrous nations, and as such reddeering their conquests to the hand which set them to work, without leaders.

4. *Chinese. Japanese.*] It is said that according to the Chinese chronology their founder Fohi was cotemporary with Noah, and it has been conjectured that the Fohi of the Chinese was really Noah, who retired with his family from the place and evil practices of his degenerate progeny, reigned with patriarchal dignity in the eastern parts of Asia, there founded that vast and ancient empire, which remains to this day unmixed with any other nations, except their neighbours the Tartars, &c. who were possibly only a less cultivated branch of the same family, and whose emperor is still accounted the father of his people, and revered with more than filial duty. The Japanese we know little of, but from a similarity in language and manners we seem to have reason to believe they were derived at some remote period from their neighbours the Chinese.

5. *Arabians.*] The Arabians are generally supposed to be the descendants of Ishmael the son of Abraham: many of their tribes lead a roving life, and are said to live almost by plundering the caravans of merchants and pilgrims who traverse their dreary deserts; others however have led a more domestick life in the fertile parts of the country, and cultivated science with success; to them the world is indebted for many valuable discoveries in astronomy, and particularly so for the improved science of arithmetic. In 622 this people wound up to a degree of enthusiasm, under the impostor Mahomet, with astonishing rapidity spread their conquests as far as India to the east, and on both sides of the Mediterranean to the Atlantic ocean; though at this day they are circumscribed within the limits of their own peninsula, and some of them are nominally under the government of the Turk.

6. *Israelites.*] The Jews, as a people to this day preserving their language and their names, though scattered widely over the earth, may, with their coevals, the Arabians, probably next to the Chinese, put in their claim to antiquity: If the Chinese be established since the latter days of Noah; the patriarch Jacob or Israel, lived to see his sons gathered together in the land of Goshen, dwelling in tents and feeding their flocks separate, in manners as well as in place, from the ingenious but superstitious Egyptians; with this people they at first found favor, their brother Joseph being over all the land of Egypt; but a different set of men the Shepherd Kings, as they were called, coming in from Canaan, they were grievously oppressed; and, that they might become quite extinct, an order was issued from the cruel Pharaoh, that the male children should be all cast into the river. 'Twas with an anxious heart, no doubt, that the mother of Moses concealed her goodly child for three months, and when she could no longer hide him

him from the enemies of her people, she took for him an ark of bull-rushes, and daubed it with slime and pitch, and put the child therein; and she laid it in the flags by the river's brink; the daughter of Pharaoh coming down to wash herself at the river, found the babe and had compassion on him, and he became her son. Thus was Moses preserved to be the leader of the Hebrews; who, after great judgments wrought for their preservation, and the destruction of their enemies, were (about 1450 years before the christian æra) brought from under the burdens of the Egyptians, and from the house of bondage, with a mighty and stretched out arm; through the Red Sea, and the wilderness, this highly favoured people were conducted, and established in Palestine, a land flowing with milk and honey. When Moses, and after him Joshua, were dead, Judges were raised up for their deliverance. About 1100 years before the birth of our Saviour, at the importunate desire of the people, to have, like all the nations, a king over them to judge them, go before them, and fight their battles; Saul was appointed to reign over them. After Saul, David was appointed king over Israel: this is he who, when but a stripling, slew Goliath, the giant champion of the Philistines; 'twas he took Jerusalem from the Jebusites, which continued afterwards to be the capital of Judea. Solomon succeeded his father David, in the government of this people; he built at Jerusalem, the celebrated temple, which had no less than 163,300 men employed in the work, and yet it was seven years in building; according to some, the height of the principal tower from the ground, was above one thousand feet; and, by Josephus's account, the stones of which the buttresses of the building were composed, were about eighty feet long, twenty-four thick, and sixteen high; of such exquisite workmanship that when put together they appear like one continued polished rock of marble.

"And the house, when it was in building, was built of stone made ready before it was brought thither: so that there was neither hammer nor axe, nor any tool of iron heard in the house while it was in building."

7. *Separation of Ten Tribes.*] Upon the death of Solomon, all Israel were come to Shechem to make his son Rheoboam king; but he rejecting the advice of the old men that stood before Solomon, his father, while he yet lived, answered the people roughly, and spake, after the counsel of the young men, in threatening words: "So when all Israel saw that the king hearkened not unto them, the people answered the king saying, What portion have we in David? neither have we inheritance in the son of Jesse: to your tents, O Israel; now see to thine own house, David: so Israel departed unto their tents." It seems the general idea that Judah and Benjamin only adhered to Rheoboam; that the other ten tribes, falling into idolatry, were in less than 300 years carried into captivity by the Assyrians, scattered abroad, and never afterwards gathered. It appears however, that a remnant of the people remained steadfast to the house of David, and the sons of Aaron, with others of the tribe of Levi, continued to offer sacrifice in the temple of Jerusalem, when Israel was generally overrun with gross idolatry.

8. *Captivity of Judah. Return, &c.*] However in less than 400 years after the division of Israel, the Jews also, having departed from the law and the testimonies to the idolatry of the nations, were swallowed up in the general conquest which Nebuchadnezzar made in the nation; their temple was burnt, the wall of Jerusalem broken down, and they themselves carried captive to Babylon; there they sat down by the rivers, they wept, they hung their harp upon the willows, they remembered Zion.

In the days of Cyrus, King of Persia, and conqueror of Babylon, and the other eastern nations; about 536 years before the birth of our Saviour; the Jews, as had been foretold by the Prophet Jeremiah, returned from the captivity, they repaired the wall of Jerusalem and rebuilt the temple; when the foundation of this house was laid, many shouted for joy; but others of the Priests and Levites, and the chief of the fathers, who were ancient men, that had seen the first house, wept with a loud voice.

The government, in subordination successively to Persia, Alexander and his successors, devolved upon the priesthood, which soon became corrupt, and the temple pollute; we are told that a statue was erected on the altar there, and sacrifices offered to the fictitious Jupiter Olympus. When the Jews had now many of them, through great persecution, departed from the true worship, and embraced idolatry, Mattathias being called upon to abjure the religion of his fathers, 'tis said to be the declaration of this honest man, that though all his nation and people should depart from the law, yet would not he; and seeing one of his countrymen about to sacrifice on the altar of an idol, he slew him, as was ordered in the law by Moses, and soon found himself at the head of an army of his countrymen, spirited by his example. His sons were the Maccabees, under whose government the Jews became independent, and continued so, till they became tributary to the Romans, under whom also they sometimes had their own kings.

9. *Coming of our Saviour.*] It was when the Roman arms having proved every where victorious, and extended their conquests over the known world; when a general peace had succeeded the rude ravages of war; when Judea was now reduced to a Roman province, yet the people were left in the uninterrupted practice of their worship in the temple; in the days of the Herods, kings of Judea, when Augustus, and after him, Tiberius, were emperors at Rome, the Saviour of men appeared in the flesh. The insatuated Jews, expecting to find in the Messiah a temporal prince, who should dignify their nation, and exalt them in worldly splendour, instead of waiting for a king who should establish his peaceful kingdom in the hearts of the children of men; despised the low appearance of the son of man, laid wicked hands on him and crucified him! In this awful event, of everlasting importance to the human race, what reason have we to admire and revere the providential hand of divine goodness, which turneth the counsel of unrighteous men to the effecting of the purposes of his own will! And there is no doubt but amidst all the persecutions of this world, through all the calamities of this life, and in all the cruel machinations of men, even to the subversion of nations, there is a secret restraining hand, which will not let things run into utter confusion; and

and which, though invisible, the righteous feel support in, when they may appear to the world to be totally abandoned. The Jews, however, did not all reject our Lord; of his own nation he had many followers, who, in declaring his name to Jew and Gentile, sealed the truth of their testimony with their blood.

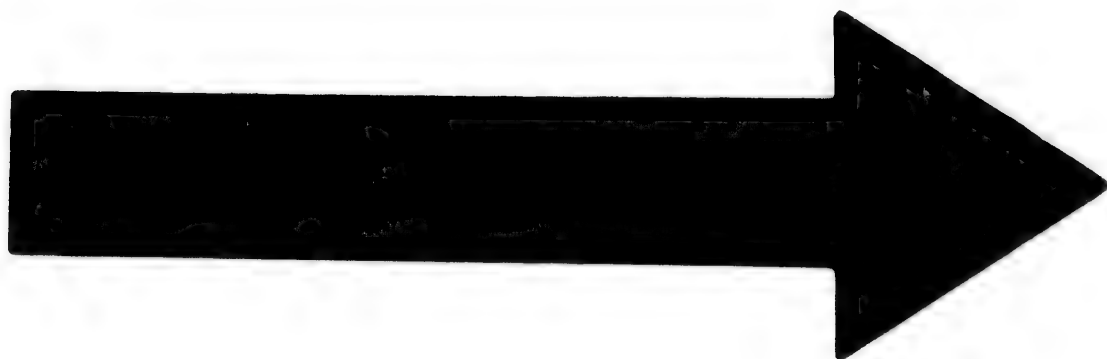
10. *Roman War and Siege of Jerusalem*] It was not long after the crucifixion of our Saviour, till those calamities which he had foretold would fall on Jerusalem, when they would not be gathered by him, even as chickens are gathered by a hen under her wings, began to be accomplished.

In the year 67, began the fatal war with the Romans, which was only to terminate in the destruction of Jerusalem, and the subversion of the Jewish nation. At first their successes were various, and in their mutual contests thousands were slain on both sides; dreadful dissensions in the mean time breaking forth among the Jews: the Christians, mindful of their Lord's prediction, fled to Pella beyond Jordan, and were secure; and many others, judging what would be the consequence of the Romans displeasure, retired from the city.

In the year 68, Vespasian entered Galilee, at the head of a powerful army; one city after another fell victims to the Roman vengeance, and the people, in prodigious numbers, were either put to the sword, or carried into captivity; among the latter was Josephus, the Jewish historian, who afterwards, being in favour with the Romans, accompanied Titus, Vespasian's son, at the siege of Jerusalem, and recorded their wars.

This devoted nation was now divided into two very opposite parties: one was for submitting to the Romans, and obtaining peace; the other was composed of zealots, who affirmed it would be offering the greatest dishonour to God, to submit to an earthly potentate, and especially to heathens. Under the name of religion, the zealots committed the most horrid cruelties; they began their outrages by murdering all those that opposed them in the country round about; they entered Jerusalem, but met with a stout opposition from the opposite party, who had taken up arms to defend themselves from the violence of these fierce persecutors. The zealots got the upper hand, and 12000 persons of rank in the city, in the flower of their age, fell victims to their wanton cruelty: barely to put these to death was thought too mild a punishment; the fell bigots made it their diversion to inflict the most exquisite tortures they could invent, on the helpless victims of their implacable fury. They next began to wreak their vengeance on the multitude, who were obliged to flee Jerusalem, and seek refuge with the Romans, though the zealots had placed guards at the avenues, who were sure to destroy the miserable fugitives that fell into their hands. Vespasian waited at Cesarea, knowing that the Jews were waisting their strength, and rendering themselves an easier prey to the Roman arms.

When the zealots, under John, the son of Levi, who had heretofore fled from the siege of Gischala, had destroyed or driven out all the opposite party; these violent people turned their rage against each other. The Idumeans, who were of John's party, had complained



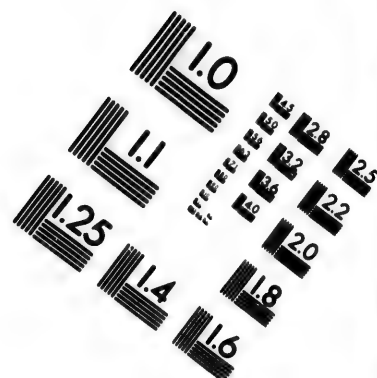
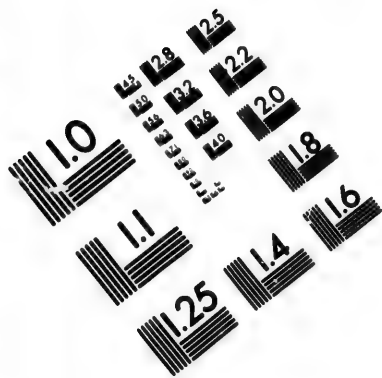
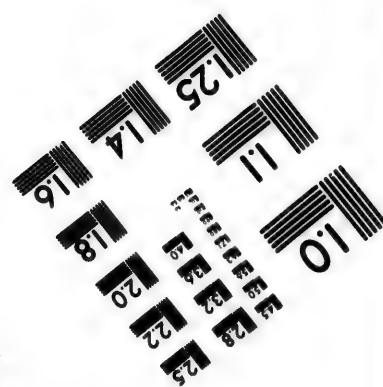
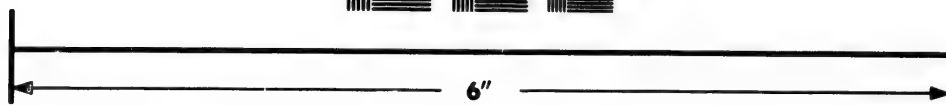
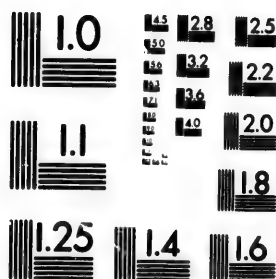


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of the numbers put to death ; but John, by his tyranny, forced them to revolt, and turn their arms against him.

One Simon also, who had his head quarters at Massada, had formed a party, and in his turn had massacred, plundered, burnt and destroyed almost all before him. Through fear of the greater fury of John and his zealots, whose strong-hold was the temple, and who it was feared would set fire to the rest of the city, the gates of Jerusalem were opened to Simon and his followers ; another faction was also raised in the city under Eleazar, but this was of no long continuance, till the different parties were all resolved into the two factions of Simon and John.

In 72 the Romans began their march towards the capital of Judea, wasting the country and destroying the inhabitants as they went along, and in 73, sat down before the walls of Jerusalem. The general, Titus, afterwards emperor, repeatedly by Nicanor, Josephus, and in his own person, made offers of peace to this infatuated people ; but they were rejected with contempt, and Titus was, with reluctance, obliged to begin the siege in form. With incredible labour of the Romans trees were cut down, houses levelled, rocks cleft asunder, and vallies filled up, towers were raised, walls built, and battering rams erected, with other engines of destruction against the devoted city.

Within, the factions of John and Simon were mutually destroying each other ; the parties were unanimous in the desperate sallies they made upon the Romans ; and when returned within the gates, with equal rage they turned their arms against each other, in those parts of the city which John had heretofore laid waste in his fury ; while such of them as fell into the hands of the Romans, were crucified in view of the town.

The Romans, after several bloody conflicts, and extreme fatigue, make a breach in the walls and force a passage ; the Jews abandoning this enclosure retire to the next ; with still greater pains the second is forced, the Jews retreat, and are still enclosed.

In the mean time famine and pestilence reign within the city, the rage of the factions increase with their calamities ; they force the houses of the inhabitants in quest of victuals ; if they find provisions they kill the people for not apprising them of it ; if none, they inflict on them the most excruciating tortures, under the idea or pretence of their having some concealed ; the zealots were not reduced to real want, but they had the horrid satisfaction of starving what they called useless persons, and thereby keeping up their own stock.

The general, knowing their miserable condition, and wishing to spare them, gives them four days to cool, and in the mean time distributes provisions to his army in view of the besieged, who flock on the walls to behold it ; he makes fresh offers of peace, to which bitter invectives and renewed hostilities are returned ; from the offers of Titus, which they attribute to cowardice rather than compassion, and from the cruelties of the zealots, great numbers are induced (though desperate the attempt) to steal away privately to the Romans ; while many are only rendered more desperate and resolute : and even in the Roman camp they met with their destruction. From a notion the soldiers had taken, that they had swallowed great quantities of gold,

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2000 of them were ripped open in one night, to come at the supposed treasure. Titus, apprized of this bloody business, would have condemned the murderers, but they proved so numerous, he was obliged to forego the design, and content himself with issuing a proclamation through the camp, that whoever should henceforward be suspected of such horrid villainy, should be put to death; yet this did not prove a sufficient protection; many of them afterwards were secretly murdered, through the said greedy design. The calamities of the Jews continue to encrease.—Without, the Romans throwing up a wall in about three days, near five miles in circuit, thereby cut off from the besieged the possibility of escape by flight, as well as help and provisions from abroad; such was their ardour to hasten the destruction of this destined nation.—Within, heaps of dead bodies, rotting above ground, and dying mortals, desolate the streets of Jerusalem; the inhuman zealots making the miseries and dying groans of their starving brethren, the subject of their cruel mirth, and even wantonly killing them by sheathing their swords in their emaciated bodies, under pretence of trying their sharpness.

Oh Jerusalem! great were thy calamities indeed.

“I should undertake (says Josephus) an impossible task were I to enter into a detail of all the cruelties of those impious wretches; it will be sufficient to say, that I do not think that, since the creation, any city ever suffered such dreadful calamities, or abounded with men so fertile in all kinds of wickedness.”

When the zealots saw they could no longer, either by their severities or the greatest vigilance of their guards, prevent the defection of the people, or their flight to the Romans, they had recourse to another most impious stratagem: A set of wretches, pretenders to prophecy, was hired to go about the city crying out, that a speedy and miraculous deliverance was at hand; and this for a while afforded delusive hopes to the miserable remains of this infatuated people, when an affair happened in Jerusalem which filled the inhabitants with consternation and despair, and their besiegers with horror and indignation. An unhappy woman, reduced to the last extremity by pinching hunger, sacrifices the feelings of a mother to the voracious calls of appetite, butchers her child, and feeds upon the body.

When news of this unnatural affair was spread through the city, the miserable inhabitants then began to think themselves forsaken by Divine Providence, and to expect the most dreadful effects of his judgments; and when Titus heard, with horror, the dismal account, he in his anger resolved on the extirpation of the nation: “Since (said he) they have so often refused my proffers of pardon, and have preferred war to peace, rebellion to obedience, and famine, such a dreadful one especially, to plenty, I am determined to bury that cursed metropolis under its ruins, that the sun may never shoot his beams on a city where the mothers feed on the flesh of their children, and the fathers, no less guilty than they, choose to drive them to such extremities, rather than lay down their arms.”

Titus, notwithstanding this declaration, still inclined to compassionate this deluded people, and while one part was yielding after another

ther to the strenuous attacks of the Roman army, both Josephus and he continued to exhort and persuade them to surrender; he desired greatly to preserve the temple; saw with concern the daily sacrifice cease, and upbraided the zealots for neglecting their worship; but this wretched people were plundering that very temple, which they superstitiously regarded as their sure defence against the Roman nation, and which they persuaded themselves was too holy to be ever suffered to fall into the hands of the heathen, though they themselves were getting drunk with the wine intended for the sacrifice.

The havock of war now rages in Jerusalem, one place after another is set fire to by the besiegers and the besieged, and in the dreadful combustion numbers are destroyed on both sides. The temple was yet entire, but the fury of the assailants could now no longer be restrained; one of the Roman soldiers getting on the shoulders of his comrade, threw a blazing firebrand in at a window of the temple, which soon set the building in a flame, on the same day and month in which it had formerly been burnt by Nebuchadnezzar.

Titus, who had been sleeping in his pavilion, awakened by the noise, immediately ran to give orders to have it extinguished, but in vain; he called, begged, threatened and even caned his men; but they, in the general confusion, were too earnestly bent on killing the Jews or increasing the flames, to either hear or regard the orders of their general. By the flames, by falls from the battlements, and by the Roman sword, which destroyed all it met with, whether man or woman, the hoary head, or the tender child, prodigious numbers perished, and among these upwards of 6000 persons who had been seduced there by the false prophets, who had promised them a miraculous deliverance on that very day. Some of them remained five whole days on the battlement, and then threw themselves on the general's mercy, but were answered, that they had outstaid their time, and were led to execution.

The scene of these desolations was the temple and its precincts, from whence the zealots, by a strenuous push, made their way into the city, but the avenues were guarded, and they could not get out. They then fortify themselves as well as they can on the south side of the city, from whence John and Simon desire a parley with the general; they are answered, that though they had been the cause of so much bloodshed and ruin, their lives shall be spared if they lay down their arms: they reply that they have engaged themselves by the most solemn oaths never to surrender, and beg leave to retire to the mountains with their wives and children. Enraged by this reply, Titus caused an herald to bid them stand on their defence, declaring that not one of them should be spared since they persisted to refuse his last offers of pardon.

The Daughter of Zion, or the lower city, is now abandoned to the fury of the soldiers, who plunder, burn and massacre with insatiable rage. The zealots, who are left, fly to the royal palace in the upper city, called also the City of David, on Mount Zion, here they killed 8000 Jews who had taken refuge in it.

Near 20 days are spent by the Romans in making preparations for a vigorous attack on the upper city; the engines of war then play with fury, the besieged, who are seized with a panick, run like

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like madmen with design to attack the wall of circumvallation, in order to effect an escape from the city, but being repulsed, they fly to the public sinks, common sewers, and every secret recess they could find; those whom the Romans can find are massacred, and the city is set on fire. John being pinched with hunger comes out, begs his life; this is spared, but he is condemned to perpetual imprisonment. Simon's retreat being better stored, he holds longer out. Simon and John are saved with 700 of the handfomest Jewish captives to attend the triumphal chariot; after which Simon is dragged through the streets with a rope about his neck, severely scourged, and then put to death; and John is sent to his punishment. Three castles still remained untaken, Herodion, Machaeron and Massada; the two former capitulated, but Massada held out. The place was very strong both by nature and art, defended by a number of zealots under Eleazar. The Roman general having in vain tried his engines and battering-rams against it, surrounded it with a high wall, and set fire to the gates. Eleazar in despair, persuaded the garrison first to kill their wives and children, and then to choose ten men by lot who should kill all the rest, and lastly, one of the surviving ten to dispatch them and himself, first setting fire to the place before he put an end to his own life; this was accordingly done, and when on the morrow the Romans were preparing to scale the walls, surprized to neither see nor hear any thing stirring, they raised an hideous outcry, on which two women, who had concealed themselves in an aqueduct, came out and acquainted them with the desperate catastrophe of the besieged.

The whole number of Jews who perished in this war was computed to be upwards of 1,400,000, besides vast numbers who perished in caves, woods, wildernesses, common sewers, &c. of whom no account could be taken. Of the number of prisoners, amounting to 97,000, (beside 11,000 who were starved through neglect, or died probably of extreme grief) a few were reserved to grace the victor's triumph, and great numbers sent to the different cities of Syria, to be exposed on the public theatres as gladiators, or be devoured by wild beasts, according to the barbarous usages of the times.

Thus were fully compleated all the woes denounced against this rebellious city and nation, since which time their remains have been scattered over the face of the earth.

S E C T I O N II.

ANCIENT HISTORY.

A circumstantial description of the various revolutions of the several empires of the east, would exceed the design of this work; and a few general outlines of antiquity, will perhaps be more interesting to the generality of people at this day, than a minute detail of remote transactions of whatever importance they might be at the time they happened.

I. Scythians,

1. *Scythians, Egyptians.*] In the days of the patriarch Abraham, it appears there were several empires founded on the earth, as those of Persia, Babylon, and Egypt. It is likely that the Scythians also were at this time a people inhabiting vast tracts in the northern regions of Asia, and under their own government, though their manner was to wander about as choice or necessity directed, carrying with them their families and tents; for while the Jews had amongst them authentic accounts of the creation, deluge, &c. and could trace their descent through every generation from Adam, the Scythians disputed with the Egyptians the honour of antiquity. The Egyptians argued that their country was peculiarly favourable to animal life; that the moisture of the soil, together with the warmth of the climate naturally produced living creatures, and as a proof of this they referred to the mud of the Nile, which does no doubt at certain warm seasons teem with life, from the vast quantities of spawn and eggs deposited there by fishes, crocodiles, and very probably birds too, as the ostrich, &c. they concluded then, that man must have first grown in Egypt, and that he could never have sustained the colds of Siberia till the art of making houses and cloaths was first found out.

On the other hand the Scythians said, that men were naturally fitted for the countries wherein they were born, that therefore cloaths were not more necessary for them than the Egyptians; that if fire at first had possession of the earth, as some supposed, their country would be habitable before that of Egypt, the heat being naturally expelled from the northern regions first; but if water originally covered the earth, their country being high land, would first be dry, while that of the Egyptians lying low, still abounding with fens and marshes, and which is with great labour, by fences and banks, kept from being overflowed, would be the last of all places peopled. So the Scythians had the romantic honour of being accounted the original or first people. This hardy race, history tells us, wisely preferred the solitudes and pleasures of domestick life, in their native wilds, before the din and cruelty of war, with all the delusive visionary honours it can confer on its most successful champions. It seems notwithstanding this, that those instruments which they expertly used in the chase, they could dexterously handle when attacked in defence of themselves, their wives and families; and the Egyptians we are told, in a very remote period of antiquity, having invaded their borders, were repulsed, pursued, and at length subdued in their own native fens; the Scythians on their return, during 15 years, making a general conquest of Asia.

In the days of Solomon, Sesostris, king of Egypt, is said to have extended his arms, with success, from Spain to Persia; but the vanity of triumph, or a thirst for plunder, rather than a desire for empire, seems to have been his motive: this probably, like that of the Scythians, was but a flying conquest, marked with no further vestiges of the vagrant conquerors, than the ruinous havock made by their destructive ravages.

2. *Assyrians, Babylonians, Medes, Persians, and Macedonians.*] From this period, however, the design of nations generally seems to have become more extensive than any thing their predecessors had ever imagined. The design of each appears now to be nothing short of universal

verfal monarchy; and accordingly we find the government of the East fucceffively in the hands of the Affyrians; of the Medes, and Babylonians; of the Perfians; and, of the Macedonians, under the impetuous Alexander the Great.

3. *Romans, Goths, Vandals, &c. Mahomet.*] While thefe magnificently deftructive changes were revolving in the Eaft, about the time of Judah's being carried into captivity, the foundations of Rome were laid in the Weft (by Romulus and his banditti, defcendants of the Trojans, who under Æneas, after the burning of Troy, found an afylum among the Latins); an empire under whose prowefs the multiplied janglings of contending petty nations were f silenced and extinguiſhed, about fix centuries after the founding of the city. The government of the empire was at firft in the hands of kings; the conſuls were next at the head of affairs, and after thefe the emperors gave laws to the world, from the Britiſh ifles to the borders of Perfia, and from the wilds of Scythia to the Lybian ſands; till, in the beginning of the fifth century, the feat of government being removed to Conſtantinople, and the weſtern part of the empire overwhelmed by inundations of the wild, uncultivated people of the North, as the Goths, Vandals, &c. their poſſeſſions were limited to that part of the world we now call Turkey.

The Perfians were not at all ſubdued, they were now powerful, and contended with the emperors for ſuperiority. It was when thefe two contending powers had enfeebled each other by their mutual diviſions, when that deluge of barbarians which had ſwept away multitudes of the ancient inhabitants of the Weft was now much reduced by a rapid ſucceſſion of revolutions among themſelves, characteristic of the fickle and ferocious temper of thoſe unrefined nations, of whom 'tis ſaid, they were in danger of ſtarving through ignorance of agriculture; they broke through their moſt ſolemn engagements, when it ſeemed to ſerve their turn, and always accounted victory a ſufficient apology for violence and injuſtice. At this calamitous period, when the race of men had been much reduced by the deſtroyations of continual war, the fierce and enthuſiaſtic Arabs or Saracens, under their fell leader the deſtructive Mahomet, ſpread their conqueſts far and wide; the kingdom of Spain was brought under their government, and the continents of Africa and Aſia, from the Atlantic to India, were ſubdued by the caliph, and under the baneful influence of his hurtful doctrines.

4. *Conſtantine, Biſhop of Rome, Charlemagne.*] About the year 300, the emperor Conſtantine had profefſed himſelf a believer of the Chriſtian faith, and from that time the biſhops of Rome ſeem to have acquired great influence in temporal affairs. For a time they continued under the power of the emperors, like his other ſubjects; but in the year 800, after great diſputes between them and the emperors, reſpecting the uſe of images in worſhip, and much blood ſpilt on both ſides, we ſee this overſeer, under the name of Pope, poſſeſſing extenſive dominions in Italy, and conferring the empire of the Weſt on Charlemagne. This period hiſtorians account the cloſe of the ancient, and the beginning of modern hiſtory.

5. *Grecians, Carthaginians, Gauls.*] As great a figure as the Grecians cut in ancient hiſtory, their conteſts appear to have been too local

local to have had much influence on the affairs of the world at large. This people, fertile in science, had among them historians to record their exploits, and poets to sing their battles; and hence we are well informed in their history. It appears sufficient here, in speaking of them and the Carthaginians, to mention, that about the days of David king of Israel, the states of Greece began to assume an appearance of cultivation and refinement: at that time it seems the cities of Athens, Sparta, Sicyon, and Thebes were built; and near two hundred years after this, when Israel was divided, the city of Carthage was founded by queen Dido and her followers, who were driven from Tyre by Pygmalion king of the Sidonians. About this time, it appears, the Imperial Troy was, after ten years siege, burnt to the ground, by the combined states of Greece, and the surprized inhabitants generally massacred, except Æneas and his followers; who flying to Italy, found an asylum in Latium, and there became the remote founders of the Roman people.

When the Roman empire had become formidable, under their consuls; the Carthaginians, having already possessions in Europe, as in Spain, Sicily, &c. were able to cope with them in war, and under the general Hannibal, threatened their utter destruction, as the Gauls had done before, under Brennus: and while the Persians, already masters of the eastern world, attempted the conquest of Europe, the Greeks, by their mutual bloody contests, rendered familiar with war, withstood the innumerable armies of the east. Both these together, with the Gauls, and indeed almost the whole world, from Britain to Persia, on the commencement of the Christian æra, were under the dominion of the Roman arms.

SECTION III.

MODERN HISTORY.

If we take a view of the world, as it appears in the year 800, or the days of Charlemagne, the period, when modern history is generally accounted to begin, we shall find, that those parts of it which had hitherto fallen under the notice of the historians we are acquainted with, were generally shared among three principal empires.

1. *Mahometans, Christians, Crusades.*] The dominions of the Saracens comprehended Asia and Africa, from the Ganges to the Atlantic, Spain was also a part of their empire; the rest of Europe to the West was subject to Charlemagne; Greece, the provinces adjoining Italy and Asia Minor, were the possessions of the now-reduced Eastern Roman empire.

It seems hardly necessary to observe, in the dominions of the Saracens, the doctrines of Mahomet were possessed; in the eastern and western empires the Christian faith.

Mahomet

Mahomet had not taken care to name a successor, and hence arose wars and janglings for the Caliphat. In Europe the contests seem to have been equally bloody. The British isles, divided into many petty states, whether under the Saxon heptarchy, viz. seven kingdoms, or the ancient princes, were peculiarly obnoxious to intestine divisions. On the death of Charlemagne, the empire being divided among his children, falls under the same grievous evils, while the heptarchy being dissolved 827, England is reduced under one head, in king Egbert. In this infant state of the European powers, the contests of neighbouring states were calamitous and many; the depredations made on them by the Danes and Normans were wide and destructive, and the bickerings between the powerful barons and their sovereigns frequent and bloody.

Perhaps a period more calamitous than this now mentioned is not to be met with in history. In vain had Mahomet broken down the altars of idols, abolished their sacrifices, taught mankind to believe in the true God, and his Son Jesus Christ; he had set himself up as a greater prophet than our Saviour, mixed monstrous fictions with the Scriptures of Truth, preached persecution and conquest to his deluded followers, and was in himself a bloody and cruel example of violence. The most peaceful Christian religion, which breathes good will to men, and teaches us to love our enemies, through the degeneracy of its professors, who had lamentably fallen into gross superstition, served as it was now professed, to warrant and foment the horrid practice of war.

When continual divisions, both in Europe and the Mahometan world, seemed to threaten the destruction of the whole human race, a new contest arose which resolved the different contending powers into two grand parties. Palestine, the scene of our Saviour's life and miracles, was regarded with partiality both by the Christian and Mahometan world; they called this territory the Holy Land, and their contests for the possession of it they deemed Holy wars.

The Caliph Omar, successor of Mahomet, had formerly invaded this country, and taken it from the Eastern empire; and from the same zealous motive, the Christian powers combined to retake it from the Saracens. In this undertaking, the ultimate object of the Christians most ardent wishes seems to have been the possession of the ignominious tree or cross whereon the Saviour of men deigned to suffer; despising the shame.

On this occasion, multitudes of adventurers from the several kingdoms of Europe flocked together, to partake in the expedition or crusade. With impetuous fury they attacked the Saracens, and were opposed with similar spirit. Deluges of blood were spilled in their conflicts, and few that had left Europe ever returned to their native countries. The enthusiasm of those ages was not easily subdued, and one crusade after another was undertaken with zeal. Jerusalem, which had been rebuilt by the emperor Adrian, was accordingly in the hands of the different parties successively.

But while the Saracens and Europeans are consuming their strength in the small province of Palestine, the more eastern nations of Asia seem threatened with total extirpation.

2. *Tartars, Turks.*] The Tartars, of whom we have yet heard very little; about the time that John was King of England, begin, under Genghischan, afterwards under Hulaku and Timur Beck or Tamerlane, successively, to make the most ruinous havoc of the human race. Genghischan, perhaps the greatest and most bloody conqueror that ever lived, had been a prince of one of the small states of East Tartary, and deprived of his inheritance at the age of thirteen, which he recovered at the age of forty; when he reduced the rebels, and began his cruelties, by throwing their seventy chiefs into as many chaldrons of boiling water. Nothing now stands before him, he conquers the neighbouring princes; subdues and kills the Van-khan, or great Khan himself, to whom his own and other states had been subordinate. He extends his conquests over the nations of Asia, from remote Tartary and the confines of China to Russia on the west, and southwards to the Persian shores: his design at first seems to be to totally exterminate the people he subdues, and re-people their countries, with his Mungls or Mogul Tartars; and accordingly, with fell and fixed resolve, after a victory he employs his army in beheading 100,000 prisoners at once. Genghischan and his followers were deists; it was long before the Khan had heard of such a thing as a temple, or particular place dedicated to the deity, and when it was first mentioned to him, he is said to have treated the notion with ridicule and contempt. Well would it have been, if the conqueror in these speculative refinements had, like the Christians in the beginning, given up to the worship that is performed in the temple of the heart. From the bloody resolution of the sovereign in favor of his deists, and the contempt he shewed for the manners of the vanquished, there seems reason to believe that his massacres, as well as those of Mahomet were, in fact, persecutions, on account of different religious profession. His destruction of the human race is to be paralleled in the annals of any other nation. To give an account of the numbers slain, during his six years reign, will appear almost superfluous, when it is considered how incapable we generally are, of forming adequate conceptions of things we have never seen. The human imagination easily lays hold of the description of three, four or half a dozen men; groups of this size frequently present themselves to the eye, we are familiar with them; some, accustomed to larger assemblages of people, as at places of worship, on the parade, &c. being informed of the number present, may possibly, without vacancy or distraction of idea, read accounts of hundreds, or of thousands of people; but fourteen millions, four hundred and seventy thousand, the number supposed to have been killed by the destructive Genghischan, seems too prodigious for any human mind to realife.

The Tartars, after the death of this destroyer of the human race, continued extending their conquests until, under Hulaku, they put an end to the empire of the Saracens, by taking their city Bagdat, and became masters of almost the whole of Asia.

The family of Jenghis Khan had become extinct, and the empire divided into many small states; between these wars prevailed, when one of the princes, Timur Beck, or Tamerlane, in the fourteenth century, copying the example of Jenghis, reduced them under his own dominion; like him spread his conquests over Asia, and even took
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and pillaged the city of Moscow in Russia. The commotions of the Tartars in the east, had driven from their confines, the inhabitants of Turkestan; and while the rest of the world were fiercely destroying each other, these vagrant Turks seem to have been acquiring possessions and power. Renowned for their courage and impetuosity in war, they were at first employed only as mercenary troops in the armies of contending powers but this did not long suffice them, they soon commenced conquerors for themselves, and reduced their former masters, the Saracens and Persians, under their own dominion. On the other side of the Hellespont, they were formed into a nation, with Prusia, in Bithynia their capital, under their leader Othman, one of the greatest warriors and politicians of the age; and hence they were also called Othmans or Ottomans.

This people, Tamerlane or Timur Beck, in his western excursions, found besieging the remains of the Eastern Roman Empire, now pent up in the city of Constantinople.

If the profession of Christianity could not secure the Europeans from wars and janglings among themselves, the doctrines of Mahomet were far from preventing his followers from destroying each other, among whom were now the Persians, Turks and Tartars, as well as the Arabs or Saracens.

Timur accordingly attacked the Ottomans with his usual ardour, cut their army in pieces, and in the insolence of conquest, carried away captive their Sultan Bajazet, bound in an iron cage. The empire of the Tartars however, soon after the death of the conqueror, became again divided into a number of states; while the Turks, recruiting their strength, renewed the attack on the Greeks or Eastern Roman Empire, in the year 1452, subdued them, took the city of Constantinople, and there fixed the seat of their government; and in the beginning of the fifteenth century their dominions included Greece, Asia Minor, Palestine, Syria, &c. with Africa, from the Red Sea, along the Mediterranean to the Atlantic Ocean. Thus fell, about the middle of the fifteenth century, the last feeble remains of the once great and imperial Rome; and the empire, whose nod had heretofore made the nations of the earth to tremble, bowed at the feet of the vagabond and overbearing Turks.

3. *Modern Europeans.*] After this period the revolutions of empires, appear to have been of far less magnitude than those that had heretofore happened; some of the Sultans, 'tis true, while the European powers were weakening each other with continual broils, frequently brought their arms against them, and also led their Turks into Persia with success; but powerful as the Ottoman Empire has been, however fierce and resolute their Sultans in battle, and with whatever enthusiasm the Mussulmans have devoted their lives in the wars of their Sovereign, the dominions of the Grand Seignior have been thought to have long since had their utmost extent. The business of war having assumed a very mechanical form since the invention of gunpowder; the science of mathematicks has given to their more cultivated opponents on the west, a vast superiority in the modes of attack and defence, especially by sea; the policy of the Porte or Turkish court, in the government of the remote parts of their territories, as in Egypt and a small part of Arabia, is to avoid heavy taxes

for fear of a revolt, and to keep the Scheiks or petty princes of those distant parts, at variance with each other, to prevent them from uniting together against the Seignior; on so loose a basis does their extensive empire rest. Within the present century the Persians, under their leader Kouli Khan, conquered their armies, and drove them out of their possessions in Persia, while the European powers were also gaining advantages over them. The other empires in Europe have also undergone some revolutions. The British Isles, from a number of jarring interests, have become one weighty empire in the balance of power. The Netherland Provinces have revolted from Spain, and become important states. The northern powers have grown into civilization and political consequence; on the other hand, the kingdom of Poland has been rent in pieces, and divided among the three adjoining powers of Prussia, Germany and Russia; with a variety of other changes, which are too local to affect the world at large.

But if the modern Europeans, by the jealousies of each other, have been restrained from universal empire in the old world; they have been able, by their improvements in navigation, and gunnery, to thunder forth terror and destruction in parts which their ancestors had never heard of; and it is to be lamented, that the naval improvements of the moderns, which enable them to traverse the pathless ocean, and mutually interchange the comforts and elegancies of human life all the world over, and the invention of gunpowder, by which the adamantine rigour of the stubborn rock is subdued, and the treasures of the hidden mine reduced to the uses of mankind; these, and many more valuable discoveries, are unhappily perverted to the mischievous business of destructive war.

It was in the beginning of the sixteenth century, they discovered, on the other side of the Atlantic, the vast continent of America or the new world as it is termed, already filled with people. It is a melancholy truth, that millions of these were put to death by some of the cruel European adventurers; possession was taken of their country, and numbers of the original natives are kept in ignominious slavery to this day; while others have purchased from the Indians, grants of their lands, and taken possession only as they have receded. The British empire in that part of the world, has been much reduced by a revolt of the colonies: In 1782, they were acknowledged Independent States, by the British Government; and this seems to be the last revolution of considerable magnitude that has happened in the empires of this world.

From astronomical observations, the ancients concluded the earth to be a globe, but the moderns have proved it; for, they have sailed round it and round it, and the sound of their artillery has been heard by the affrighted natives in every quarter of the globe. The territories that some of the European governments, separately lay claim to, in the remote parts of the world, exceed in magnitude, not only the particular country they possess at home, but even all Europe, in its utmost extent.

4. *Present Division of the Earth.*] And now, in the latter years of the eighteenth century, to take a view of the nations of the present day.

day. How is the world at this time divided? and who are the busiest actors on the present stage?

The northern parts of Asia are under the Russians, from Europe to the Pacific Ocean; and the utmost extent of the land, it appears from Cook's late discoveries, is within forty miles of the most western extremity of the American Continent. The Turks possess Asia Minor, adjoining which are the Arabs on the South. The Chinese possess the eastern parts of Asia: to the south west and south of these lie the kingdoms of Thibet, Pegu, Siam, and Cochin China; and still farther east the islands of Japan, all but little known to the Europeans. In the central parts of the Continent, rove the Tartars; south of which lies Persia, and also India or the Mogul's Empire, in which the maritime powers of Europe have possessions, as well as in the East India Isles.

The Turks feebly support a sort of claim to the northern parts of Africa, from Abyssinia on the east, to Morocco on the west; these two empires we are not much acquainted with, and still less with the interior parts of the country. In Africa also the Europeans have settlements, both in the islands, and along the western, southern and eastern coasts.

But in America it is that the dominions of the Europeans are most extensive; there they lay claim to territories which it would take all Europe to people; numerous tribes of Indians and the American States occupy the rest.

Europe is the smallest quarter of the globe, but from the skill of the people in arts and sciences, it is of greater importance, in a political capacity, than all the rest of the world collectively. The empires in the eastern parts of it, derive a consequence from their numerous armies and military skill; but the maritime powers, or those on the west, have been by far the most enterprizing in their projects. These are the nations, whose language is heard in every quarter of the globe, and whose fleets have urged their adventurous way through opposing difficulties, exploring the utmost boundaries of sea and land, through every climate of the world. Among these adventuring powers, we may, perhaps, without partiality, place our own nation, amongst the foremost in hardiness of enterprize; and among their boldest expeditions, may be reckoned their attempts to discover and effect a passage through the Northern Seas to the Pacific Ocean.

P A R T V.

CHANGES THROUGH DIFFERENT AGES

IN THE

MANNERS OF MANKIND.

S E C T I O N I.

ANCIENT TIMES.

IN the preceding abstract of history, we have already seen the revolutions of many great and powerful empires; and in this tumultuous world, where possession seems to have been much influenced, and often quite determined by the longest sword, this necessarily proves an interesting part of history; there have happened, however, a variety of other events, which are perhaps of greater importance than the most splendid conquests, though they may appear with far less show in the historic page. Such are the changes that have happened through different ages in the manners of mankind.

1. *Patriarchal Manners.*] It was the happy privilege of man, when he had by disobedience fallen from his native innocence, to be regarded with compassion, and allowed to approach with offerings unto him whose are the cattle on a thousand hills. Cain brought of the fruit of the ground, and Abel also brought of the firstlings of the flock, and of the fat thereof.

It is worthy of remark, that neither the offering nor the person could find acceptance without accompanying piety; for while Abel and his offering were had respect unto, the expostulation with Cain was, "Why art thou wroth? and why is thy countenance fallen? If thou doest well, shalt thou not be accepted? and if thou doest not well, sin lieth at the door."

When the waters had ceased, and the earth was dried, Noah came forth from the ark; he built an altar, and offered burnt-offerings thereon of a sweet-smelling savour.

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The faith of Abraham was tried in a remarkable manner; he was called upon to take his only son Isaac, whom he loved, to get into the land of Moriah, and offer him there for a burnt-offering, upon one of the mountains. The father of the faithful built an altar there, and laid the wood in order, and bound Isaac his son, and laid him on the altar on the wood, but his hand was stayed, and a sacrifice was prepared, which he offered up in the stead of his son.

At Beerfheba Isaac builded an altar, and called on the name of the Lord.

At Bethel Jacob set up a pillar of stone, and he poured a drink-offering thereon, and he poured oil thereon.

It appears these sacrifices of thanksgiving in the patriarchs were accepted, and the outward revelations of the divine will to them, was generally by angels or celestial messengers; after this, the law came by Moses, which was also delivered by angels, as the apostle tells us. These shadows of the good things that were to come, were continued among the Israelites till all were fulfilled, as the prophets had foretold, in the one great sacrifice that was once offered up for every man. The other nations of the earth almost universally fell into idolatry, though many, in those days of darkness, seem to have been raised above the gross superstition, as the pious Socrates and Plato, with numbers of others in different ages and nations.

It does not appear that the wickedness of the antediluvian world was the worship of images; lewdness and violence seem to have brought on them the divine judgment. Soon after the flood, however, idolatry appeared in the world; for when Jacob departed from the house of his father-in-law, his wife Rachel took the images and hid them in the camel's furniture, and Laban complained, "Wherefore hast thou stolen my gods?" And when Jacob was commanded to go and dwell at Bethel, and make an altar there; the patriarch had first to cleanse his household from idolatry; "And they gave unto Jacob all the strange gods which were in their hands, and all their ear-rings which were in their ears; and Jacob hid them under the oak which was by Shechem."

Respecting the origin of idolatry, various have been the conjectures as is subsequently mentioned.

2. *Origin of Arts and Letters.*] It appears from the scriptures that the arts were in a degree of cultivation before the flood. Of the offspring of Cain, Jubal was the father of such as played on the harp and organ, and Tubal the instructor of every artificer in brass and iron. If we may believe Josephus, the posterity of Seth also observed the order of the heavens, and the courses of the stars. The same author says, that the Assyrians and Chaldeans were the first after the flood, who applied themselves to the cultivation of the sciences. Their king, Belus, is said to have converted the celebrated tower of Babel into an observatory, and to have made the first astronomical observations in it, and the Chaldeans accounted him the author of that absurd, and now exploded, system of astrology. The Jewish historian also informs us, that these sciences, which the Egyptians cultivated with renown and success, were derived from the patriarch Abraham, who brought them into Egypt from Ur of the Chaldees.

A desire

A desire to preserve from oblivion the remembrance of remarkable events or valuable acquisitions, seems in all ages to have universally prevailed among the nations of the earth. Among the earliest attempts after record, we may perhaps reckon the practice of the patriarchs in erecting of pillars, or heaping up stones together by way of memorials; but with no better helps than these, tradition necessarily wears under the accumulating burden of ever-growing annals, and nations and people, with their names and deeds, become buried in one promiscuous ruin together. Picturesque representations of acts and emblematical imagery, seem a further and very natural effort towards lasting memorials; and accordingly we shall find, whether we advert to the ingenious efforts of the aspiring Egyptians, those cultivators of science in remote antiquity, or the more feeble endeavours of the yet uninformed Indians, drawing is also an early attempt after record; these are advances indeed that might possibly have been made towards written history or recorded intelligence, if mankind had never been acquainted with the use of speech; but to affix to particular characters determinate sounds, and to be thereby able to communicate intelligent ideas to distant countries and remote ages seems a power scarcely less wonderful than that of giving thought an utterance, by means of sound. By help of speech we enjoy the gratification of colloquial intercourse with a small circle of our own cotemporaries; by writing we hold conversation with people afar off, and with the hereby-rendered social dead.

It is rather a matter of dispute with historians, by whom the written characters were at first contrived, some attributing the invention of letters to the Syrians, others to the Egyptians; however that be, it seems Cadmus brought the art from Egypt to Greece, that kindly soil for the yet infant sciences, where, with the other arts, it was improved and cultivated with equal diligence and success, as those writings of their poets and philosophers, we have yet preserved, abundantly prove, and which most of the present languages in Europe, are in a great measure indebted to for what degree of elegance or refinement they possess.

About a century before the birth of the prophet Moses, the use of letters is said to have obtained, and he who was skilled in the learning of the Egyptians, was capable of recording, for the benefit of the people, those laws which were given for the government of the children of Israel.

The Asiatics * generally writing from right to left, the Europeans from left to right, one might naturally suppose, and some have imagined, that two different alphabets have, in different countries, been invented independent of each other, from which the others have, as branches, proceeded: but on the other hand it has been a conjecture, that as the subtil Egyptians had, in the use of their hieroglyphicks, allegorized away the true simple worship to superstitious notions and idolatrous

* The Chinese set down their characters in columns, from the top of the page downwards, but these are so complex and numerous that it takes a man's lifetime to learn them. Perhaps the arrangement was accidentally determined on, for by Grecian antiquities of the oldest date, it appears the inscriptions sometimes read from the right as well as from the left.

idolatrous rites, so in the transition from their vague emblems to determinate characters, they had accounted their letters not simply signs of oral sounds, but also emblematical representatives of their fictitious beings, their fancied deities; and that Moses, in his many testimonies against the superstitions of the house of Pharaoh, had to shew to the backsliding children of Israel, that intelligence could be communicated by letters of form and arrangement quite different from those which the Egyptians extolled as supernatural, or revered as divine, and that hence sprung the oriental alphabets in general, while the Europeans were obliged to Cadmus for translating to Greece the characters of the Egyptians.

3. *Astronomy, Geometry.*] In those warm climates, where the sky is generally serene, and where it is the practice to this day to sleep on the tops of houses, it should seem the people would be naturally led to a contemplation of the firmament; these would soon discern that the innumerable multitude of stars observed the same course as the sun; if this shining orb, in the splendour of light, performed his course from east to west, while he afforded to the world the advantages of day, the stars also, and the moon, glided along in parallel or coinciding circuits, during the cool refreshing night season; one star only seemed to keep its place, and to be as a centre of revolution to all the other luminaries, and this orb they called the polar star, or pole. When these observations had been made on the celestial bodies in general, and the aspect of the heavens had become somewhat familiar, they could not but observe, that some of the luminaries appeared to change their relative situation in the heavens; particularly, the sun and moon appeared to be constantly overtaken and left behind by the stars, as they all seemed to move along together round the pole and our earth; sometimes to approach towards the pole, then to recede from it, which evidently produced the seasons of the year, and which gave them the opportunity, in the different seasons, of becoming acquainted with all the visible stars in the northern, and most of those in the southern, hemisphere, in the course of one revolving year.

That imaginary broad circle or belt round the heavens, called the Zodiac, wherein they saw the moon and other planets in their various motions or appearances, they very ingeniously divided into 12 equal portions, which they called houses: during the space of one revolving year, this circle seemed to wheel 366 times about, and the sun to complete 365 daily courses; hence, the circle continually gaining upon the luminary, the sun was said to enter, possess and leave the several houses successively.

Those parts of the circle the sun seemed to possess in the spring, when the flocks and herds are increased by the fecundity of the season, were called the houses of, 1st. Aries, or the ram. 2d. Taurus, or the bull. 3d. Gemini, or the twins, from the goat's frequently bringing forth twin kids; these were changed afterwards into the twin brothers, Castor and Pollux: the other signs of the Zodiac were successively, 4th. The Crab, denoting the retrograde motion of the sun in midsummer. 5th. The Lion, expressive of the intense heat of summer. 6th. The virgin, with ears of corn; denoting the harvest. 7th. The Balance, shewing the equality of day and night in autumn.

8th.

8th. The malignant or venomous Scorpion, representing the diseases at the fall of the leaf. 9th. The Archer, signified the hunting season. 10th. The Goat, that climbs the craggy mountain, was meant to shew that the sun now mounted the Zodiac. 11th. The Waterman, representing the setting in of the ram. And 12th. The Fishes, shewed the fishing season.

Some have thought Josephus partial to the patriarch, in accounting Abraham the first introducer of astronomy among the Egyptians; they have imagined that Cham and his family brought with them the astronomical design of the Zodiac, on their first settling in the land of Egypt. The lower parts of this country are, on our autumn, annually laid under water by the overflowing of the Nile; this greatly enriches the soil, but at the same time sweeps away the land-marks of the husbandman: to remedy this inconvenience, recourse was necessarily had to lines and angles, and as the skilful pilot avoids the hidden rocks and shoals by keeping distant objects in certain bearings with each other to his eye, as he traverses the smooth and uniform surface of the water; so by similar helps had the Egyptian rustic his particular lot of ground again returned to him, when the flood had left the plains of Egypt, under one continued appearance of sline and mud.

Some account this the origin of geometry with the ancients; certainly it appears this circumstance would tend vastly to the fixing of that foundation of science, among the ingenious and assiduous Egyptians.

For the securing their families, their cattle and conveniencies on the higher grounds, it was necessary for the Egyptians to watch with attention the precise time of the coming of the flood. Astronomy was not, in those days, in that high cultivation in which we have it now, the civil or political year was not yet established; the divisions of the zodiac not sufficiently minute; the general and obvious one of the seasons still less so.

In the summer, annually, a short time preceding the inundation, a star of the first magnitude appeared in the east, a little before the rising of the sun. It seems probable that the Egyptians, for a while, kept with anxiety the watches of the night, for fear of too sudden a deluge of waters; but this brilliant star annually making its appearance a little before the inundation took place, it afterwards sufficed to await the coming of the star. They gave it the name of Thaut or Thot, the dog; and Anubis, the barker or monitor.

It should seem to require an effort in the imagination to see figures of animals, &c. in the firmament; but the ancients either imagined they did, or resolved they would, discover things of this sort in the arrangement of the stars: and accordingly, in their different houses in the zodiac, and in the stars surrounding their bright Anubis, they saw, by help of a fertile fancy, one bright star represent the eye, another the termination of a tail or horn, these a body, those a limb, &c. till all their signs were determinately fixed; these were increased in after ages, and served astronomers in their accounts of the starry heavens, as the present divisions of the earth help geographers in the description of the globe.

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The overflowing of the Nile was also preceded by the north wind, and the hawk stretching her wings towards the south; the decrease of the waters by the south wind and the coming of the whoop, a bird from Nubia, to feed on the insects, &c. left by the flood. All these were noticed by the Egyptians, who appointed a company of skilful observers, for the farther advancement of knowledge; these, with great industry, investigated the properties of natural bodies, studied the geometrical affections of lines, angles, &c. they made their observations from a labyrinth or tower appropriated to that purpose, and in it recorded their improvements, as well as they could, by emblematical drawings or hieroglyphics, when they had not yet arrived at the invention of letters.

4. *Idolatry.*] Among the various conjectures that have been made respecting the origin of idolatry, some have imagined it natural to the mind of man, and others have derived it from the false traditions that have prevailed in different nations respecting the true worship. A very short time after the deluge idolatry made its appearance. It seems from the scriptures, that Abraham himself was brought up in it, and that this was the worship of his forefathers; and since that time, there is scarcely a nation we have heard of, but what has at some time been under its pernicious influence; and it has assumed in different ages and nations a variety of shapes.

The beginning of idolatry in this world, was perhaps, in the reverence of the people towards natural things. The shining orb which affords day to the world, the moon and stars which beautify and cheer the silent watches of the night; these seem to have been with many nations the sole objects of their idolatrous worship; and there are perhaps no records of a people fallen into idolatry, where these splendid luminaries have not had a share of their adoration. If I beheld the sun, says Job, when it shined, or the moon walking in brightness, and my heart hath been secretly enticed, or my mouth kissed my hand, this also were an iniquity; and caution was given to the Jews lest when they looked up to the sun, moon, and stars, and the rest of the host of Heaven, they should be driven to worship them. The bowing to images appears to have been a still grosser depravation of the human mind; yet this also appears to have obtained in the world at a very early period. Perhaps this practice would have never been once thought of, had not deluded man so far departed from the reverence he owed to his maker, as to ascribe divine honour to his fellow mortals. When this was once conceived, they had a model and the copy soon followed.

In remote antiquity, it seems, Belus, the inventor of astrology, before mentioned, had a statue erected to his honour by the Chaldeans, and he who was adored while living, for his astronomical skill, had sacrifices offered up to his statue in Babylon, when his remains were mingled with his native dust. This seems to have been the origin of the idol Bel, mentioned in the Scriptures; and from similar roots all the heathen deities seem to have sprung, as the Jupiter of the Greeks and Romans, the Osiris of the Egyptians, &c.

There have few things ever occurred in history that have more puzzled the curious enquirer to account for than the great similitude between the rights, ceremonies, and sacrifices of the Hebrews, and those

those of the idolatrous nations. Some have imagined that the Hebrews adopted the rights of their neighbours, but this was strictly forbidden by the law; others have concluded that the Gentiles must have copied from the Jews, but the customs are older than the children of Israel.

If it be remembered that the patriarchs, while their hearts were singly to the praise of their Creator, observed the seasons of the moon, brought offerings of bread, salt, wine, oil, the first fruits of the earth, and the firstlings of their flocks, as sacrifices or offerings of thanksgiving; erected pillars, altars, &c. by way of memorials, and called their children as also certain places by names expressive of singular providences. If it be considered that the Jewish manner of worship consisted of various rites and ceremonies, which were only considered as shadows, types, or figures while they offered up adoration and praise to Him who delivered them from the land of Egypt; and that they also had their emblems or hieroglyphical figures, as the brazen serpent, symbolical cherubs, &c. we will, perhaps find it easy to believe, as history informs us, that mankind did not all at once fall into idolatry, but many were kept in the knowledge of the truth, long after the hieroglyphic signs were adopted; and numbers were preserved true worshippers during all ages, while they in some measure observed the customs of the nations, having only regard to the symbolical sense.

The insignificancy however of human wit and learning, in matters purely religious, appears in a striking point of view, when we see the effects they had on the minds and manners of the Egyptians, and their successors, in the arts and sciences, the Grecians and Romans; the ruins of whose works are beheld to this day with admiration, and from whom the moderns have derived elegance, as in their languages, buildings, &c. These very people seem at one time or other to have been in the practice of the most licentious manners, and abominable sacrifices, and to have been beclouded in the darkest superstitions.

It appears the Egyptians, before the invention of letters, from their studious observations, on the various properties of animals, plants, &c. on the geometrical affections of mathematical figures, and from a consideration of the uses of various instruments also; from all these they had, with great ingenuity, derived a variety of devices of emblems, and by these disposed in certain attitudes they could record matters very intelligibly to those who were acquainted with their hieroglyphic system. Thus flames, which are ever moving, represented light and life; a globe with expanded wings, was the emblem of ether; the lion or bull indicated strength; the hawk, swiftness or the wind, &c. &c. but unhappily for mankind, they introduced a mortal their king Osiris as an emblem of the deity; his wife Isis represented the fertile natural world, and their son Orus, agriculture: to represent the incomprehensible attributes of the Most High, recourse was had to their emblem Osiris, and accordingly as they wanted to represent wisdom, power, &c. they metamorphosed the emblem into monstrous shapes, clapping on it the head of a lion, bull or bird, and altering the other parts of it to other animal shapes as suited best their particular design. Their hieroglyphicks they had depicted on their altars, obelisks,

lisks, &c. and in their temples. When those simple and easy characters the letters, were found out, emblematical signs were in some measure laid aside: it seems however that, either in reverence for antiquity, or from a superstitious regard for the ancient symbols, they continued to use them on the most solemn occasions, as at funerals, in their public assemblies for worship, &c. It was at this period that the emblematical devices received the name of hieroglyphicks, i. e. holy writings: as the figures were now no longer in common use, it seems the symbolical meaning was soon forgot by the multitude who mistook them for real beings, and accordingly they became the objects of their idolatrous worship.

Many nations had heard of the politeness, the wealth, the refinement, and also of the curiosities of Egypt, as the overflowing of the Nile, and their admirable works of art; hither they resorted, acquired the learning, and imbibed the superstitions of the Egyptians. There was also corn in Egypt, when famine prevailed in other parts, which brought numbers down in the time of need, as Joseph's brethren; by these means, and by help of their neighbours the Phenicians, a commercial people, it seems the manners of the Egyptians were transported to the different nations of the earth, and in different nations the superstitions and idolatry assumed different appearances according to the genius or notions of the people; among the Carthaginians, Allemans, Gauls, Ancient Britons, Moabites and Amorites, human victims were offered up, and to this day we find the shocking practice obtains among the inhabitants of the South Sea islands; the politer Greeks were not so much in the practice of these horrid customs; the Romans were still more clear, yet, with all their ingenuity, they were the dupes of gross superstition, and practised, under the name of religion, the most licentious rites and manners. Yet we may sometimes see beautiful morals couched in their fables, in many of them we may discover mutilated traditions of the important events recorded in the scriptures, as the creation in their chaos, paradisaical state of our first parents in their golden age, &c. Some have supposed that many of their idols were derived from traditions they had of the ancient patriarchs, prophets, &c. as Noah, Abraham, Moses, &c. be that as it may, it seems their gods were generally derived from mortals at the first: many of these were men of science, some kings, others heroes, some robbers, &c. &c. and with these, their female relations were often deified. When divine honours were attributed to mortals their evil deeds were also remembered, and hence the gods of the heathens were represented even by their own deluded votaries as sometimes guilty of the most enormous crimes, at others, the patrons and lovers of virtue.

If the Greeks in their refinement in poetry and the arts, had acquired a taste too delicate to relish the monstrous shapes of the Egyptian hieroglyphics, which had been rather produced by the severity of studious research, than conceived with the spirit and enthusiasm of the artist; if the statuary at Athens arrived at elegance in the forming of the idols, what was left of sublimity in the moral of the Egyptians, seems to have exceedingly suffered from the unlimited freedoms of the licentious Attic bards. Fiction or romance appears to have been the spirit of their poetry; to give a plain historical account of events

seems

seems to have been too simple for the luxuriancy of their muse, and hence the most enormous fables of the heathens appear to have been derived*. Thus if any died of grief they were metamorphosed into rocks or

* To mention half, say a fiftieth part, of the monstrous absurdities of their poets would fill volumes, and perhaps tend rather to corrupt than improve the minds of youth; but as the moderns, not only poets and artists, but also the plain writer of prose, will allude to the customs of the ancients, and in their zeal for figurative eloquence and emblematic delineations, call upon or exhibit again those fictitious beings, a short sketch of the heathen theology may perhaps have its use. From chaos, or confused heap, the ancients suppose the universe arose, not only the natural world, but also their gods celestial, terrestrial, infernal and marine. They held that Chaos brought forth Erebus or night, and Terra, Gaia, Vesta or the earth, from Night sprung Ether and the day; the goddesses Terra or the earth gave birth to Cælus, Uranus or heaven, Ourea or the mountains, Pelagus or the ocean, and Tartarus or the great deep, all hereafter to be peopled by her offspring, the immortal gods that were yet to come into existence. They tell us that Cælus had a son, Saturn, that rebelled against and imprisoned his father, whom he succeeded in preference to his elder brother Titan; that Jupiter deposed his father Saturn, and gave to his brothers Neptune and Pluto the government of the sea and the secret abbyss. The Titans or Giants, they say, made war on Jupiter, and in their attempts to scale the heavens piled rocks upon rocks, mountain upon mountain, and darted flaming hot trees at the skies; but Jupiter at length overcoming them, their most terrible champion Typhon was overwhelmed or buried under mount Etna, and to the straggling of the giant, in his uneasy posture, they attribute all the earthquakes and eruptions in Sicily. But to avoid their endless labyrinth of preposterous fiction, it may sufficiently answer the present design to exhibit a sort of sketch of the names and particular characteristics of some of their principal gods, heroes, &c.

According to the heathen theology their gods and goddesses, heroes, nymphs and other fictitious beings, places, &c. were

In Name	presided over	bad as characteristic figures
Nox	the night, sleep and dreams	fable robe and chariot bespangled with stars.
Saturn	time and agriculture	bald pate and wings, in one hand a scythe, in the other a serpent.
His wife Ops, Rhea or Cybelle	the earth	her head crowned with towers, surrounded with animals.
Aurora	the morning	golden car and rising sun.
Janus	th. year, bounds of cities, gates, &c.	two faces, in one hand a key, in the other a sceptre.
Atlas	the starry heavens	the globe on his shoulders.
Jupiter or Jove	gods and men, but especially over thunder	the forked lightning grasped in his hand and a sceptre and eagle.
His wife Juno	women, marriage, child-birth	sceptre, Iris or rainbow and peacock.
Neptune	sea and horsemanship	his large shell chariot and trident.
His wife Amphitrite	his attendants sea gods and goddesses	the tritons and sea nymphs.
Pluto	the dead, elysium and Tartarus	a sceptre or wand, ebony throne or chariot.
His wife Proserpine	the 3 fates, 3 harpies, 3 furies and the 3 judges	the boatman Charon, the three-headed watch-dog Cerberus, &c.
Ceres	the harvest	sickle in one hand, ears of corn or cornucopiz in the other.
Apollo	light, medicine, music and archery	lyre, bow and arrows, wreath of laurel.
	the 9 muses, 3 graces, and 3 lyrens, Pegasus or the flying horse	his offspring Esculapius, Phaeton, Orpheus, &c.

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or trees: when an astronomer loved solitary walks, if by night, the moon was in love with him, if in the morning, Aurora. If a princess or celebrated nymph had been overcome by a ruffian or seducer, a god had been enamoured with her, and, to effect his purposes, had become a bull, dragon, shower of gold or a swan: ships were flying horses, men on horseback centaurs, lewd women syrens or harpies, oranges apples of gold, &c. &c.

It seems worthy of admiration that in the midst of the monstrous fictions of the ancients, wherein their deities were represented as perpetrators of the most horrid actions, there was still preserved among them a belief that, after their decease, in a future state pious mortals should

<i>In Name</i>	<i>presided over</i>	<i>had as characteristic figures.</i>
His sister Diana	woods, forests and hunting	crescent on her head, bow and quiver of arrows, dogs and nets.
Mars		military habit, sword, spear, &c.
His wife Bellona	battles, discord and tumults	blazing torch or brand, trumpet, whip.
Minerva or Pallas	sciences, arts and war	spear in her right hand, terrible Egis in her left, at her foot the owl or cock.
Mercury or Hermes	merchants, commerce, rhetoric, oratory	Caduceus, wings at his cap and sandals.
Vulcan	the forge and mechanic arts	smith's hammer.
His wife Venus	love and pleasure	Doves or swans, the 3 hours, her sons Cupid and Hymen.
Bacchus	mirth and wine, Maenades or Bacchæ	goblet, clusters of grapes, &c.
His wife Ariadne	Thyades, satyrs, Fauni, Sileni and Silvani	wreath of ivy and pine leaves; thyrsus encircled with the same.
Pan	shepherds, groves, and pastoral life	horns, goat's feet, crook and syrinx or pipe.

Hercules renowned for his labours and strength, they represented leaning on his club, and on his shoulders the skin of the Nemean lion which he slew.

Hebe and Ganymede were cup-bearers to the gods who fed upon nectar and ambrosia.

Momus was the jester, and made Olympus ring with the laughter of the celestials.

Proteus the keeper of his father's (Neptune) cattle, could transform himself into various shapes.

Eolus was ruler of the winds, Eurus east, Zephyrus west, Boreas north, and Notus south.

Scylla and Charybdis (in reality a dangerous rock and whirlpool between Sicily and Italy) were beings also.

The Muses, Graces and Loves waited on the happy.

Gorgons, Hydras and Furies tormented the miserable.

The highways had their lares, the houses their penates, and each man his genii.

The fields had their Fauni, the vineyards their Satyri, and the forests their Silvani.

The nymphs were of various orders, over the mountains the Oreads presided, the Napeæ over vallies and meads, the Dryades over forests, the Naiads were fresh water nymphs, as the Nereids were of the sea.

The particular periods of time, the different ages and circumstances of life, the several parts of the body, the various implements of agriculture, all had their tutelary deities.

Indeed the whole universe seemed to swarm with these airy nothings.

Peace, Concord, Virtue, Honour, Faith and Hope had all their temples; Fear also had its votaries; Modesty and Silence had their altars; Calumny and Impudence were also deified.

Nay stables, dunghills and sewers had their guardian gods.

should be received into bliss; and wicked men be punished for their iniquities upon earth.

They held, that the souls of departed mortals went immediately to the shades, where Charon, receiving them into his boat, ferried them over the Acheron and Styx, to the realms of Pluto: here sentence being passed on them by the judges, Minos, Eacus and Rhadamanthus, they were either received into the delightful Elysium, among happy spirits, or handed over to the furies, Alecto, Megæra and Tisiphone, to be tormented in the dreadful pit or Tartarus, a dismal prison, surrounded with walls and gates of brass, and the flaming waters of the Phlegeton.

Here, say they, the giants or Titans, who rebelled against Jupiter, are bound under everlasting chains; here, the ever-growing liver of the huge Tityus, who covers nine acres, is preyed upon by hungry vultures; here Phlegyas is doomed to sit beneath a huge overhanging rock, for ever under the dreadful apprehension of being crushed to pieces by it; here Ixion, fixed on a still revolving wheel, is encompassed with serpents; here Sisyphus, is doomed to roll up a huge stone to the top of a hill; this ever eludes his utmost efforts, before he reach the summit, bounds to the bottom, and loads with despair the ill-fated criminal; here Tantalus, amidst profusion which he cannot taste, suffers the tortures of endless thirst and hunger; and here the Belides for ever labour in vain to empty a well with sieves.

To the idols which, as has been already remarked, had been in their life time kings, astronomers, heroes, &c. were devoted or ascribed every improvement in life, and all the various acquisitions of knowledge. Naturalists, called the metals by their names; astronomers the planets; in the structures of their altars might be seen the progress of mathematical science; in the temples and statutes the improvements of the arts. The orders of the priests were various.

The astrologers, through impious fraud or deluded imagination, assumed to foretell future events from astronomical observations. The augurs, in like manner, from the flight of birds, and uncommon appearances in nature, &c. The auspices from circumstances attending the sacrifice. Magicians, from the invocations of spirits, and various other ceremonies. Oracles were held in great reverence, and consulted on the conducting of public expeditions, as also in the ordering of private life; and the answer returned by the priestess or priests was couched in dark ambiguous terms, with so much design, that the event, however it turned out, established the credit of the Oracle, and imposed its imaginary divinity on the minds of the deluded and superstitious multitude.

While the polite and learned world was overrun with the worship of images, its superstitions were diffused over many parts of the earth. It appears, that but very few, if any nations, collectively were preserved in the simplicity of the patriarchal manner of worship; some fell into the adoration of the works of creation only, particularly the heavenly bodies; and others, making no outward profession of worship, imagined that the spirit of their deceased ancestors mixed with the winds and hovered round the scenes of their former lives and actions; in affliction, they remembered the days of former years; they repeated over the graves, in the enthusiasm of grief, the deeds of their fathers and

and bards, in their songs, celebrated their deeds, as examples for future times. Among the children of Israel alone, were preserved the records of truth and divine revelation.

5. *Persecution*] It is remarkable that among the Gentiles in general, whether preferred in simplicity or fallen off to idolatry, such a thing as persecution, on account of different sentiments respecting religion or worship, was scarcely ever thought of. For the most part, unmolested by their neighbours, each nation and each individual observed the manners most agreeable to their own sentiments in religion, and meddled not with others. This toleration however, seems to have had no other foundation than mutual complaisance. And the foul Hydra persecution, which seems to have furiously triumphed among the followers of Mahomet, and perhaps also in the armies of the haughty Genghischan; this dire monster, which has often committed lamentable outrages among nations professing christianity, seems to have made its first appearance among the idolatrous Israelites, who had revolted from the house of David; after this we find it in Babylon among the heathens, when the Jews were in captivity. The trials of Daniel, of Shadrach, Meshach and Abednego are too well known to need relating here. The highly favoured but fickle Jews, after their return from captivity, divided into sects, the principal of which were the Essenes, Pharisees and Sadducees; and after the death of Matthias, and his sons the Maccabees, who had opposed the cruel persecutions of Antiochus the king of Syria, broken down his idols, and established the true worship; we find the Pharisees, who had the greatest name of sanctity, cruelly persecuting their brethren the Sadducees, and labouring for no less than their total extirpation.

Their neighbours, the Samaritans, professed a worship somewhat similar to their own; the grand dispute between them seems to have been respecting the proper place for assembling; the Samaritans contended for Mount Gerizzim; the Jews for the temple of Jerusalem: bitterness prevailed between the two nations, through several ages; and, in the days of our Saviour, we find the woman of Samaria expressing surprise, that he should even ask a drink of water of one of her nation. The animosity seems to have originated at the time of the return of the captivity from Babylon. When the Jews were about rebuilding the walls of Jerusalem, the Samaritans proposed to join them in the work, but the people, who were not to mix with strange nations, looked upon them as no true Israelites, but the descendants of the heathen, which Senacherib had planted in the place of the ten tribes of Israel, whom he conquered and carried away captive into the land of Assyria.

6. *Primitive Christians.*] It is well known what persecutions the Saviour of mankind, and his apostles afterwards suffered from the Jews. Indeed, what the church endured at first from the heathen world, seems to have been generally at their instigation; the doctrines however, and testimonies of the primitive christians were so contrary, and so directly opposed to the spirit, the maxims and manners of the world, as to render them particularly obnoxious to their idolatrous neighbours and governors!

The religion of the nations was not merely a speculative doctrine professed in the schools, or preached in the temples. The innumerable deities, and rites of Polytheism, were closely interwoven with every circumstance of business or pleasure, of public or of private life; and it seemed impossible to escape the observance of them, without, at the same time, renouncing the commerce of mankind, and all the offices and amusements of society. The Christian, who, with pious horror, avoided the abominations of the circus or the theatre; found himself, encompassed with infernal snares, in every convivial entertainment, as often as his friends, invoking their deities, poured out libations to each other's happiness. The most trifling mark of respect to the national worship he considered as a direct homage, yielded to the demon, and as an act of rebellion against the majesty of God.

If we cast our eyes over the numerous remains of antiquity, we shall perceive, that besides their idols and sacrificial instruments, the elegant forms and alluring fictions, consecrated by the imagination of the Greeks, were introduced as the richest ornaments of the houses, the dress, and furniture of the Pagans. The arts of music and painting, of eloquence and poetry, were destined to celebrate the glory of their deities and heroes. Even the common language of Greece and Rome abounded with familiar, but impious expressions, which the imprudent Christian might too carelessly utter, or too patiently hear.

If a Pagan friend (on the occasion perhaps of sneezing) used the familiar expression of "Jupiter bless you," the Christian was obliged to protest against the divinity of Jupiter. He considered every art and every trade that was in the least concerned in the framing or adorning of idols, as polluted by the stain of idolatry; from which it was his religious concern, to keep himself pure and undefiled.

The dangerous temptations which, on every side, lurked in ambush, to surprize the unguarded believer, assailed him with redoubled violence on the days of the festivals. On these occasions, which were frequent throughout the year, it was the custom of the ancients to adorn their doors with lamps and with branches of laurel, and to crown their heads with a garland of flowers. The superstitious observances of public or private rites, were carelessly practised from education and habit, by the followers of the established religion; but as often as they occurred, they afforded the Christian an opportunity of bearing his testimony against them.

The zealous fathers, so called, in their censures against luxury and pleasure, despised all knowledge that was not useful to salvation, and considered all levity of discourse as a criminal abuse of the gift of speech; gay apparel, magnificent houses, and elegant furniture, were supposed to unite the double guilt of pride and sensuality; false hair of gold or silver, downy pillows, (as Jacob reposed his head on a stone) white bread, foreign wines, public salutations and the use of warm baths were rejected. But of all the reformers from the manners of the world, Tertullian appears to have been the most rigid and severe; indeed, were the censures of that zealous man, to be universally applied to the Christians of the present day, it should seem they would

would generally be involved in one common reproof. Speaking of the lofty buskin of the actors, he says they impiously strive to add a cubit to their stature; and the practice of shaving the beard, he says, is a lye against our own faces, and an impious attempt to improve the works of the creator.

The divisions however, that happened in the first assemblies of the Christians, and the departure of some from the simplicity of truth, seem to have unhappily mixed together, in the obscure history of those early times, the pious zeal of the faithful, in their testimonies against the superstitions of the heathens, and the vanities of the world, with the weaknesses, absurdities, and the uncharitable severities of others professing the Christian name; and, while some of those called fathers, in the moments of zeal, seem to have rejoiced in the idea of the future destruction of their enemies, and to have had but partial and contracted ideas of the universality of the divine love; others breathed a christian spirit, and acknowledged the pious philosopher among the heathen, to have been instructed by the logos or word by whom all things were made, and Justin Martyr, that valiant Christian, in the confidence of this truth, testified to the Roman Senate, that Socrates was a Christian.

Distinguished from the vain and licentious world, in the plainness and frugality of their tables, their furniture and dress; it seems the Christians were alike averse from the bustlings and pleasures of this world. The defence of our persons and property, they knew not how to reconcile with the patient doctrine, which enjoins an unlimited forgiveness of injuries. Their simplicity was offended by the use of oaths, by the pomp of magistracy, and by the active contention of public life; nor could they be convinced, that it was lawful for them, on any occasion, to shed the blood of our fellow-creatures, either by the sword of justice, or by that of war. It was acknowledged, that, under a perfect law, the powers of the Jewish constitution had been exercised, with the approbation of heaven, by inspired prophets and by anointed kings. The Christians felt and confessed, that such institutions might be necessary for the present system of the world, and they cheerfully submitted to the authority of their Pagan governors. But while they inculcated the maxims of passive obedience, they refused to take any active part in the civil administration or military defence of the empire.* They decided among themselves the differences that happened between any of the brethren, being unwilling to expose them before the tribunal of an idolatrous judge.

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* A sentence of death was executed upon Maximilianus, an African youth, who had been produced by his own father before the magistrate as a sufficient and legal recruit, but who firmly persisted in the declaring, that his conscience would not permit him to embrace the profession of a soldier. And Marcellus the Centurion, on the day of a public festival, threw away his belt, his arms, and the ensigns of his office, and exclaimed with a loud voice, that he would obey none but Jesus Christ, the eternal King! and that he renounced for ever the use of carnal weapons, and the service of an idolatrous master. The soldiers, as soon as they had recovered from their astonishment, secured the person of Marcellus. He was examined in the city of Tingi, by the president of that part of Mauritania, condemned and beheaded for desertion.

They were not, however, in all things obedient to the governors of the earth; the people who had to incur the displeasure of their friends, as often as they poured out libations in their private convivial meetings, and who had by their absence or public declamations to bear a testimony against the idolatrous festivals and rejoicings, though the rage of the heathens on these occasions frequently threw them (as offerings to the offended majesty of their fictitious deities) to the lions on the theatres, already stained with the blood of beasts and of gladiators: These had also to refuse a submission to laws, when the abjuration of their master was the price of compliance; when tribute was levied upon them for the express purpose of supporting the temples or sacrifices of the heathen, they could not renounce the sacred law of truth in their hearts, for the imperial edicts of earthly monarchs, however sacred they might be accounted by a superstitious multitude.

A charity like that of the Christians which provided not only for the necessities of their own needy brethren, the lame, the sick, the aged of the community, the widows and orphans, strangers and pilgrims, prisoners and captives, but which likewise maintained the heathen poor, could hardly fail to draw the attention and force the approbation and esteem of the world. The Pagans, who were actuated by a sense of humanity, while they derided the doctrines, acknowledged the benevolence of the new society. The Christians' worship of the Supreme Being was too sublime for the gross conception of the Pagan multitude, who were at a loss to discover the object of their veneration, that was neither represented under any corporeal figure or visible symbol, nor was adorned with the accustomed pomp of libations and festivals, of altars and sacrifices. *

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* The imperfect history of the early times of Christianity, leaves it a matter of dispute among the different professors, what was the manner of worship in the primitive assemblies of the saints, and accordingly different modes have been adopted and contended for with zeal, as the primitive, or at least the proper standard to be observed.

While no censure is meant against any individual, or any society of people, perhaps candour will allow, without the imputation of party attachment, a very short account of, and a few remarks on a practice which particularly distinguishes one society of people from all the other professors of Christianity. The society alluded to, are the people called Quakers, and the practice is that of sitting in silence in their worship. Without raking with labour and anxiety in obscure ecclesiastical annals for information, they have found most easy in their minds to assemble together in silence. They think it would be presumptuous and daring in them to invoke the Most High, and offer up petitions in certain forms and at stated times; they believe that worship is to be performed only by divine assistance, that this may be done in silence, without the intervention of words or of sounds, and accordingly their meetings are oftentimes silent: that prayer and praises are only to be offered up, as they are moved thereunto by the Holy Spirit, and accordingly they presume not to limit these to particular ages, sexes or persons, but whatever they believe to proceed from this spring, whether it be prophecy or prayer, or the songs of adoration, rejoicings and praise, is acknowledged in their assemblies. History informs us, that it was a practice among the Hebrews to continue a while in silence before they entered upon the solemnity of prayer. If the Christians in the beginning, were in the practice of sitting in silence, in their assemblies for worship, the Jews would hardly record the custom as a thing degrading, novel, or extraordinary. The Hebrews however it seems, brought it against them as a charge, that they were as mute in public as loquacious in private; which latter they probably guessed at, while the other was obvious: that they cautiously avoided the dangerous encounter of philosophers, and mingled with the rude and illiterate crowd; but we may remember, the

wife

The Christians were branded with the name of Atheists, on account of their noble testimonies against the plurality of gods; accused of suicide, because of their cheerfully submitting to martyrdom, and impiously charged with the perpetration of the most abominable crimes in their religious assemblies.

To the capricious violence of the heathen, fidelity and resignation were opposed on the part of the Christians, and their numbers increased through every opposition; at length the emperor Constantine embraced christianity, and the profession of the most holy faith became mixed with the political institutions of the earth; and, it is a melancholy truth, that the professors themselves, in the course of their intestine dissensions, have inflicted far greater severities on each other, than they formerly experienced from the rage of the Heathens.

7. *Commerce. General Remarks*] In the account already given of the origin of idolatry, something of the progress of arts and sciences has necessarily been related; the further advancement of these, the origin of civil governments and of commerce, may now be considered: the beginning of these improvements seem all to have originated in our weaknesses and wants.

Though man, in a state of nature, not enervated by luxury or ease, arrives at a wonderful agility of body, and becomes capable of enduring amazing hardships and fatigue, yet unassociated with his fellows, he is perhaps the most helpless of all living animals; other creatures defended against the inclemencies of the weather, by natural coverings of hair, feathers, &c. lie down on the bare earth and take comfortable repose; they rise up and feast upon the pasture or fall on their prey; while he, intended for more sublime enjoyments, finds imposed upon himself by necessity, what, perhaps the eternal laws of truth and righteousness require secretly in the heart of every unbiassed and virtuous man; he must associate with his fellows; he cannot live altogether for himself; and, whether strength and agility of body or ingenuity and a delicate frame; whether a native bent of the mental powers towards quietude, vivacity, or patient thought, whether a genius active and dictatorial, or a disposition placid and submissive mark the individual; all these under proper restrictions, have their uses in society, and tend to the comfort and good of mankind. And it is worthy of admiration, that man, though so helpless, in a mere state of nature, is, associated with his fellows, the only living creature who sustains every climate, and who lives and multiplies in every country, from the equinoctial to the poles.*

Commerce

wise and prudent were those who could least understand the simplicity of the gospel, and the apostles and ministers of the primitive Christians, were often unacquainted with the arts and sciences. History also informs us, of the primitive Christians, that the want of human learning, was supplied by the assistance of the prophets, who were called to that function without distinction of age, of sex, or of natural abilities; and who, as often as they felt the divine impulse, poured forth the effusions of the spirit, in the assemblies of the faithful.

* The different dispositions and constitutions of men seem naturally to have produced in their intercourse with each other, at an early period, the distinctions of patriarchy, and households, or masters and servants, an order, which was probably derived only from mutual association, and which tended to the happiness of the whole, as far as ostentation was avoided on the one hand, and servile fear kept out on

Commerce originating in the wants of mankind, most likely made its first appearance under the name of barter or exchange: the keeper of cattle would find an advantage in giving his milk or the fleece of his

on the other; perhaps we cannot imagine a more pleasing and desirable situation in this calamitous and evil world, than to be a member of such an association, where each individual knows the department he has to fill in the family, performs that office, and finds every other provision ready to his hand, whether his duty be some daily labour, or the more anxious task of superintendancy and oeconomy. A body of this sort, the Christians, in the beginning, seem to have been, and they sent relief to the brethren at a distance: some Christian societies still form similar associations, and perhaps at calamitous seasons, true Christians having possessions cannot hold back, while they see their brethren labouring under distress; but they will again be religiously resolved into a people having all things in common, as at the beginning: This in degree took place among the Friends during the late troubles in America. The Governments of nations in general, appear at first to have been in the hands of kings or chiefs, dignities probably derived immediately from patriarchal authority; and while these conscientiously endeavoured to become as the fathers of the people, and the subjects acted as loyal and obedient children, it was perhaps the easiest and best mode of government. There seems often a stability and quietness in monarchies, which republics are unacquainted with: perhaps hereditary crowns devolve the easiest upon the successor; a very valuable consideration in the affairs of a nation.

It may be granted without hesitation, to the advocates for republics, that we all are by nature equally free, whatever distinctions political institutions may have made, that no man naturally has a right to be governed by another, but by his own consent, or, as he, in bare justice, yields to a majority of votes against himself; but while man, with all his reasoning, and sometimes a specious appearance of religion, continues a partial respecter of persons, the supercilious frown of the great, will awe him into submission, and their countenance and smiles prove perhaps more alluring baits to corruption than the obvious glaring bribery of gold. It may be acknowledged also, to those who wish to see distinctions levelled, and the things of this world equally distributed among mankind, that the bounties of the earth are by nature, equally free to all; but in this ever-changing and transitory world, which daily receives its new inhabitants, and where every returning sun looks down upon the afflicted, mourning over the cold and lifeless remains of their yesterday's relations or closely allied friends; where the wants of society call for the artificer as well as the husbandman; the dispenser of laws as well as the man of science, and the merchant, to circulate or interchange the conveniences of life, where labour is required to succeed in any of these departments; and, while man is generally stirred up to diligence, more by a desire for the welfare of himself and his own particular family, than a liberal regard for the good of society at large; we may perhaps safely conclude it to be often a less evil, that children should inherit the possessions and offices which their fathers and ancestors have procured by diligence and virtue or even by violence and war, than that society should be again disturbed by calamitous tumults, which is too often the case among civilized nations. Among some of those nations which the Europeans have the insolence to call savages, these evils are scarcely known, pretty much, from their living at large, and having things in common; there, the king or chief, under a tree, or on the banks of a river, hears with patience, and decides with candour, the disputes of the people; and neither he, the sage, doctor nor priest, goes hungry from the feast, when the active have succeeded in fishing or the chase; but these, while they are patient of fatigue, are improvident against calamitous seasons, and often endure the miseries of want.

Some of the Indians of South America, seem to enjoy the comforts and benefits of society, through the care and solicitude of their leaders the Jesuits, in a higher degree than many other nations experience.

Smooth and tranquil, the reigns of many of the monarchs of antiquity appear to have passed away, if compared with the commotions and tumults of the republics of Greece: 'tis true, some kings, by their depredations and violence, have disgraced humanity, and, in their conquests, made rueful havock of mankind; but often the attacked found an end of their troubles in submission to the conqueror; while the

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his flock for the fruits of the earth, and an equal benefit would be hereby derived to the tiller of the ground; so early however as the days of Abraham, gold and silver were substituted as a medium in trade,

most virtuous patriots, philosophers, &c. suffered banishment or death, from the caprice of the fickle but violent Greeks, and their intestine divisions seem never to have had an end while the republic remained. History does not inform us of the republic of Carthage, enduring such commotions, but the latter days of the Roman Commonwealth, were perhaps as calamitous and dreadful from their civil wars, as any that ever were experienced at Athens.

After saying thus much however in favour of monarchies, as often proving the most peaceable national government; it would be the part of dissimulation to quit the subject, without declaring against a superstitious regard to any particular form. If kings, while they administer laws with clemency and justice, in love to the people, are a terror to evil doers, and a praise to those that do well, and ought to be honoured; well ordered republics are entitled to equal respect. Were all the world under one government, or taught to consider themselves as one large family, it would perhaps tend much to the quiet and good of mankind: on a smaller scale however, we have seen the good effects of general association: the British Isles, heretofore divided into a number of petty rival states or clans, were grievously harassed with perpetual bickerings; now peace and order are experienced, laws are administered in the most remote parts, and the feeble individual, by the Association, finds a protection of his person and possessions, which nations collectively have not yet acquired; indeed the disputes of these, instead of being settled in a legal orderly manner, are generally referred to the decision of the sword; and, if an overbearing nation be at any time checked in its insolence, by the interference of other powers, it seems rather from jealousy than a love of justice. Indeed the advantages of association appear in a striking point of view, in the comparison between nations and the individuals which compose them. Restrained by the mutual laws of society from molesting his neighbour, or united to him by the tender ties of friendship, the individual seems generally to have a right sense of justice; while nations unhappily adopt the most selfish and uncharitable sentiments, and call others by the opprobrious names of barbarians, savages, and even "our natural enemies."

True religion, as far as it obtains in the world, precludes the necessity of every earthly law, and it is expected, from the prophecies, that the time will come when nations shall no longer learn the art of war, but beat their swords into plowshares, and their spears into pruning hooks; until this period arrives, however laws have their use, and temporal powers, as benefits to mankind, ought certainly to be regarded with the substantial respect of duty and obedience, when their orders are not superseded by the divine law which is wrote in the conscience; and commerce, while we have to mourn its abuse in particular parts, even to the enslaving and destroying of the human race; perhaps in others it tends to remove the destructive canker and venom of bigotry; which, assuming the sacred name of religion, tears to pieces the bonds, the cords of love, which should bind society together; hugs its own deluded and violent votaries in a delirious embrace; hurls over the faithful to persecution and death, and throws the poor erratic metaphysician upon a chaos of darkness and doubts: perhaps commerce helps the sectary to respect probity and justice, more than systematic professions, and to value philanthropy, which springs from no other root but the inward religion of the Saviour of men, in every nation and every individual, more than all the unkindly severities or uncharitable maxims of the education of his youth; and it probably helps to associate mankind together in a way, which may in time tend to bring even nations under the restraint of wholesome laws, and help to diffuse society and justice abroad in the earth: when it is also considered, that the languishing patient, whether man or brute, derives kindly medicines from the Arctic Regions and Torrid Zone, from the mine and from the deep: when we reflect on what different and remote parts the several bounties of creation are partially bestowed, that sometimes a local scarcity takes place, when the harvest abroad is full and plentiful; that commerce distributes the profusion to parts sterile and scanty; and finally, that the magnetic laws in creation favour the most extensive intercourse; we will perhaps acknowledge it is well suited to the condition of sublunary beings, and wish to encourage the arts and sciences by which it is carried on.

trade it seems in those times they had it only in bullion, and weighed it off in shekels, &c. it was a later improvement to reduce it into coin.

Caravans of merchants so early as the days of Jacob, travelled from Asia down into Egypt, for the brethren of Joseph when they had cast him into a pit, and had sat down to eat bread together, "they lift up their eyes, and looked, and behold a company of Ishmaelites came from Gilead with their camels bearing spicery and balm, and myrrh; then passed by Midianites, merchantmen, and they sold Joseph to the Ishmaelites for twenty pieces of silver; and the Midianites sold him into Egypt unto Potiphar, an officer of Pharaoh and captain of the Guards." The price which the merchants gave for Joseph being a certain number of pieces of silver, it seems the use of coin had now taken place.

The Tyrians and Egyptians are generally said to have been the first that applied navigation to commerce; the Phenicians, it is true, were in antiquity, the most eminent navigators and merchants that appeared on the Mediterranean. Tyre was their crowning city, whose merchants were princes, and whose traffickers were the honourables of the earth; but some historians advance the probable conjecture that the inhabitants of the peninsula of Arabia, shut out on one side from the rest of the world by sandy deserts, chose rather than traverse those dreary wastes, to commit themselves in vessels to the mercy of the waves, that they were the first navigators, and that the articles of commerce, which the Tyrians vended over Europe, the ivory, the gold, the incense, spices, &c. were first purchased from the Arabians, who brought them from the East Indies to Egypt by way of the Red Sea; through which channel also, it appears, Solomon derived immense wealth by help of Hiram king of Tyre.

The Greeks had their fleets too, but they appear to have been applied more to the business of war than an extensive commerce.

The Carthaginians, originally a colony from Tyre, extended their commerce over a great part of Europe. Sardinia, Corsica, with a great part of Sicily, were in their possession, and a considerable part of Spain was under their dominion. The Romans saw with admiration the superiority they derived from their fleets; and longed, like them, to be able to land their armies on distant coasts. We are told, "a Carthaginian vessel wrecked on their territories served this assiduous people as a model." But these, like the Greeks, seem to have much confined their improvements in navigation to the purposes of war.

8. *Architecture, Learning.* Agriculture, the making of tents and management of cattle, seem naturally to have been the first employments of mankind. The use of metals, however, found out before the Flood, soon enabled them to erect magnificent buildings; the smaller arts of life followed by slow degrees*. These were generally the

* It appears from history, and the prodigious ruins of antiquities that remain to this day, that in the first attempts of mankind after elegance, what they were deficient in beauty and delicacy of taste, was hugely apologized for in the vastness of magnitude.

the pursuit of private individuals; architecture was considered as of national importance, and often encouraged by princes for the preserving of their names to posterity, or to keep their restless subjects from sedition and rebellion, by keeping them busily employed in times of peace.

A very superficial view of history may serve to inform us that genius and political refinement are not naturally peculiar to any particular climate or country. The Greeks, to whom the world is indebted for almost every improvement in the arts and sciences, were originally, perhaps, the rudest mortals that have lived since the Flood inhabiting dens and caverns; history informs us they gleaned a scanty sustenance from the bounties of uncultivated nature, and often fell victims to want, to beasts of prey, and the more savage fury of each other; 'tis said they wandered about at large, like beasts in the forests, unacquainted with the tender ties which bind families together, the laws of association and marriage being unknown among them †.

Colonies from Egypt and Phenicia, it seems, first introduced learning, arts and laws into Greece, which proved a most kindly soil for these improvements. Here the researches of the Egyptians were prosecuted with steadiness, and a severity of investigation; hence they derived their astronomical skill; hence the salutary help of the surgeon's knife, and the kindly aid of the physician; here the captivating beauties of nature, the elegant living form, the luxuriant foliage of the field, the blooming tincts were caught by the ingenious and imitating Greeks; and again made to delight in sculpture and painting; their language they improved to an enchanting degree of eloquence, and the elegance in their poetic writings will probably command admiration while ever there are people that know how to read them; then how must they have ravished the ears of the Athenians, who irresistibly felt the full force of all their native beauties; and their music produced an enthusiasm which the moderns, with all their nice systematical divisions, cannot effect on their auditors; and which, perhaps, proves the simple unisons of the ancients to have been vastly more agreeable to the pathetic of nature, than all the refinements, and multiplied concords of modern music.

Heretofore

magnitude. The wonders of Babylon, as related by Herodotus, appear almost incredible; and the pyramids of Egypt, rendered solid by their prodigious weight, and fixed firm on their bases by age, may perhaps astonish, while the world endures. The colossus of the sun, at Rhodes, stood at the entrance of the port, and admitted ships in full sail to pass between its legs:—who can imagine such a statue without petrification? well, indeed, might it be accounted one of the wonders of the world.

† Though in some countries the harmony of this state seems obscured in national foolishness and stupidity, though polygamy has been practised in others, through many ages, though there have been instances of people, as the Jaggas in Africa, and the Amazonian women in Scythia, who, in the fury of military ardour, have refused to be joined in the religious bonds of matrimony; yet the rudest nations have perhaps in all ages, where superstition or madness for military exploits has not perverted their native bias, shewn the most violent, and perhaps partial attachment to their relations; and were it possible now to view the forests of Greece, as they appeared in remote antiquity, perhaps we should find, notwithstanding what the obscure history of those times relates, the tree which lodged in its branches the little parent songsters, with their callow brood, helped to shelter at its foot, a family not unacquainted with all the tender solitudes of domestic life.

Heretofore the Egyptians and Oriental nations, had erected buildings of astonishing magnitude; it remained for the Greeks to add the delicate beauties of proportion and grace. The orders of architecture arose in Greece. †

When the Romans, in their conquests, had planted their eagles in Greece, and brought of its most valuable productions of arts, the mistress of the world began to adopt the improvements of the vanquished, and Rome became the seat of learning, eloquence and the polite arts.

In the reign of Augustus, the Imperial city arrived at its highest pitch of grandeur; and from its shining, at this time, in arts and literature, not its giving laws to the world, this period is called the golden age of Rome. If the Latin poets fall any thing short of their predecessors the Greeks, it was probably because these could not possibly be equalled in any language but their own, and from similar causes, perhaps the production of the Augustan age excel the most eloquent writings of the modern Europeans, though prejudices in favour of our native tongue, which we naturally understand the best, and an incapacity to feel those lost delicacies of a dead language, which depended only on the manner of expression, will scarcely allow us to prefer any to our own.

'Tis but a small part of the works of the ancients, however, that have escaped the rage of barbarous times. The fury of the Goths destroyed what was curious and valuable at Rome; and the famous library at Alexandria, consisting of 400,000 volumes, was after this consumed by the flames of the destructive Saracens. To a few of the learned in Constantinople, we seem indebted for what we have preserved of the works of antiquity, during those general devastations; and after these woful revolutions in the republic of letters, Europe, for about a thousand years, seems to have scarcely produced any thing towards the advancement of science: a night of gothic darkness overpread the countries once famous for learning and the arts, philosophy was accounted dangerous among the professors of Christianity; literature

† There are few people but what have sometimes found covert in the Sylvan shades, from the storm or scorching heat, and perhaps the first sheds of the rude Greeks in their forests, were these natural coverings rendered still more comfortable by help of a little art, as the running a sort of beams across from tree to tree, fixing upon these lesser boughs and branches, tying all together by means of twigs, and covering them with leaves, rushes, &c. their fences from wild beasts were probably made up in a similar way by a kind of hedge from tree to tree. If the colonists introduced among them the use of mortar, and taught them how to erect buildings of stone; they probably remembered the beauties of their former mansions, the rising columns or trunks of trees, the architraves or beams running across, the luxuriant and natural festoon, and possibly they hence conceived the first design of their most stately porticos and temples. Perhaps, also, that every strange ornament, the ox's skull, which obtains in architecture till this day, was derived from real ones hung up by their dwelling, as trophies of valour, when it was a hardy adventure to engage with those brutes, as yet running wild and bellowing in the forests; or indeed, it may in its origin have had some allusion to their sacrifices, simplicity to poverty, as columns without bases, seems to have marked their first attempts before they arrived at elegance in architecture; the beautiful and natural Doric order made its appearance first; the Ionic has been accounted the most elegant, as the enriched Corinthian was the last production of Grecian luxury.

literature sought an asylum in the Mahometan world, and the works of the ancient and learned philosophers of Greece, translated into Arabic, were cultivated under the auspices of the caliphs of Bagdad, when their doctrines were in Europe accounted impious and heretical.

3. *Germans in their native Wilds.*] When the learning and arts of the Imperial city were overwhelmed by the rude northern conquerors, Goths, Vandals, Germans, &c. its language and manners, its laws and customs, also underwent a remarkable revolution; and by the intermixture of the rudeness and refinement in the conquerors and the vanquished, the whole face of Europe seems to have assumed quite a new appearance, in which the gothic features were by far the most striking, and indeed these appear, in some measure, to predominate in the national characters of modern Europe to this day.

It seems the ravagers of Rome, before they left their forests, formed in their native wilds, a number of distinct tribes or clans; each community governed by a sovereign, and its particular districts by chieftains, seemed like a particular family or household; private landed property was not known among them; as with some American Indians, so with those it was a law or usage that they should jointly cultivate the ground together, and that the produce should be distributed among them, at the discretion of the magistrate, according to their necessities or merits; that headed by the chieftain, the vassals should cheerfully defend their sovereign, and repel an hostile enemy from their territories. Powerful tribes granted tracts of land to others on the tenure of their associating with them in a military capacity, when the exigencies of the state required their assistance, and this, it appears, was the remote origin of the feudal system.

The Germans, while they exercised the strictest justice in their own tribe, and at home the most generous and unreserved hospitality, seem to have accounted it valorous and just, to annoy and plunder those whom they were not bound to protect; to fall upon these and drive off their cattle were the feats of their youth, and the spoil was received with pleasure at home, as the booty of privateers is at this day welcomed into port with clamorous huzzas, while the merchant abroad with his family and friends is involved in ruin.

In the assemblies of state the voice of the people was to be attended to by the council, the magistrate or sovereign; a murmur coarse and often rude expressed their dissent; the rattling of their armour was the flattering mark of their applause. The women were allowed the privilege of debating in these assemblies, and this has been accounted the source of those restrictions which the modern governments of Europe have been under, while the monarchs of Asia and Africa were despotic, and this is the beginning of those privileges which the European women have of possessing even the regal dignity.

Their meetings were commonly accompanied with a feast, a custom which continues to this day with juries and courts; in these they used to drink to excess, and in the disgraceful moments of debauch, mistaking the effects of liquor, the impudence it produces for dignity of manners, and violence for valour, their swords used to stain their festivals with blood. It seems it was in these rueful ages that the custom of drinking healths had its origin: in applying the cup to the mouth
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and drinking, the body was peculiarly laid open to attack, and in those violent times it was not safe for the individual to be quite off his guard, what he could not defend himself while swallowing the liquor, in the confidence of friendship he deputed to another, addressing his friend, "I pledge thee," says he, taking hold of the cup, or "I pledge my life in thy hands," and immediately on this signal his friend drew his sword to defend him from sudden assault: the manners of after-times changed the custom into staid and formal expressions of benevolence; and worse than formality the dissipated moderns often seem to swallow the potion as a drink offering to party faction, to obscenity and debauch, under the name of toast and sentiments.

Ever violent in his dispositions, in the times of peace the German flung himself with impetuosity on the fatigues of the chase; chiefs and dice were his amusements in the hours of leisure, to these he gave himself with equal violence; he sported away his cattle, his furniture, his armour, and would at last risk his person or liberty on a single throw, and in case it went against him, to suffer himself to be bound, chastised and sold to slavery, by his weaker and more lucky antagonist, was a point of honour with him; and hence the forfeitures incurred in gaming, that destroyer of the peace of individuals, and of families connected with them, are to this day termed debts of honour.

The solemnization of their marriages was by mutual presents from the bride and bridegroom, in the presence of their friends and relations, who had previously given their consent to the match. Their women were eminent in the discharge of their domestic concerns, they inculcated chastity on the minds of their daughters, and rehearsed to their sons the valorous deeds of their ancestors; ardent to signalize himself in warlike exploits, the youth longed to be free from the cares of his mother; to take up arms and mingle with the men, was a privilege too great for him to assume merely as his own choice or inclination directed. The council of the district or canton to which he belonged, enquired into his qualifications and age, and if he was deemed worthy of being admitted to the honour of being a soldier, a chief-tain adorned him with the shield and lance; and this it seems was the origin of knighthood.

Animated with courage and full of vigour, while they sported with or gloried in the toils and hardships of war, they treated their women with affection and respect, the praises of these were the laurels of the hero, and their disapprobation covered the coward with confusion and disgrace. In the time of engagement they took their stand near the field, and lifted up by their presence their warriors to victory: they appeared at the sports, where the young and the valiant were urged by the points of the lance and the sword to feats of desperate agility and boldness, and the panting and wearied youth, besmeared with dust, with sweat and with blood, seemed amply rewarded for his hazards if he won but the smiles and applause of the fair; and hence the gallantry of the knights, and the jousts and tournaments in the feudal times.

Full of the pomp and stateliness of behaviour which the parade and violence of war naturally inspire, the German when he walked, seemed conscious of importance; he cast his eyes to the ground, and looked, not around for the objects of a vain and frivolous curiosity.

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To treat him with indignity and disdain, was to offend him mortally; he could bear no stain on his personal character; an affront of this kind covered him with infamy if he forgave it. The blood of his adversary could alone wipe it away; and he called upon him to vindicate his charge or to perish. Hence the murderous duel, by law forbidden, but by pride kept up to this day. Doubtful contests before the magistrate, were referred to a combat: he ordered them to prepare for battle; made signal for the onset, and gave his award for the victor. The doubtful charge of infidelity brought by the husband, could, in this way, be disputed with him by the relations of the wife. Indeed they imagined, in these their barbarous contests, that the divinity must interfere in behalf of innocence and virtue; and the contests of the priests for the place of sovereign druid, were decided in the same rude and violent way: and, hence the judicial combat, once universally adopted over Europe.

Unacquainted with any profession but that of war; disposed to it by habit, and impelled to it by ambition, the German never parted with his arms; and hence the wearing of a sword is to this day, in Europe, a fashionable part of dress. They accompanied him to the senate house, as well as the camp, and he transacted not without them, any matter of public or private concern. They were the companions of his manhood, when he rejoiced in his strength; and they attended him in his age, when he wept over his weakness. Of these the most memorable was the shield; to leave it behind him in battle, was to incur an extremity of disgrace, which deprived him of the benefit of his religion, and of his rank as a citizen. It was the employment of his leisure, to make it conspicuous; he was sedulous to diversify it with chosen colours. Upon this, frightful figures and the achievements of the hero were rudely delineated, to strike terror on the enemy; and hence the system of heraldry, the blazoned armorial bearings or the coats of arms.

The theology of the Germans was full of the marvellous, as well as that of the politer Romans whom they subdued. The deep and silent recesses of their woods, were appropriated to their devotion; and here human sacrifices were sometimes offered up by the Druids, who assumed to draw prognosticks from the blood of the victim, as it poured forth, as also from the running of water, the flight of birds, and the neighing of horses.

If the Romans had their Janus, their Saturn, &c. to whom they dedicated their times and their seasons; these had their Tuesca, Wodin, Thor and Freya, to whom they ascribed similar honours; and the idolatrous dedication of both, are still kept up among the European nations, in giving days and months the heathenish names, as Sunday, Monday, Tuesday, &c. January, February, March, &c. When the sacrifices have ceased and the protection of the idol is invoked no more.*

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* If the ancients in their fictions, had their satyrs, silvans, fauns, &c. our Gothic ancestors, in their superstitious fears fancied enchanters, giants, magicians and dwarfs; elves, fairies and sprites; and, the terrific horrors which their romantic legends of dreadful giants, haunted castles, dismal adventures of the knights errant, to relieve distressed damsels from enchantment, &c. handed down from generation to generation,

The Gothic Elysium or Paradise seems to have exceeded in romance all that was ever fabled of the regions of Pluto; thither they transferred their gallantry, carousing and arms, which afforded them such delight on this side of the grave. In this happy place, say they, "the heroes every day as soon as they have dressed themselves, they take their arms, and entering the lists, fight till they have cut one another to pieces: this is their diversion; but no sooner does the hour of repast approach, than they remount their steeds all safe and sound, and return to drink in the palace of Odin, where the Val-kyriæ, beautiful virgins, pour out their liquor to the heroes."

SECTION II.

MIDDLE AND MODERN TIMES.

1. *Revolutions, Feudal System.*] When the rude northern warriors had poured forth like a deluge from their native wilds, and taken possession of the more cultivated territories of the south of Europe, and of the northern parts of the continent of Africa, the change of their affairs on their new acquisitions, necessarily forbade their former regulations from continuing among them; heretofore a nation or tribe, from their simplicity of manners, could wander about as inclination or the chase directed; now even the private individual must know his home; attend to the concerns of his own particular family, and only appear in public when the exigencies of state, and the call of his Chief required his presence.

Formerly, valour or wisdom procured the public esteem and confidence, now other distinctions besides those of personal abilities and virtue, must mark out the individual for the tribute of respect or adulation. Property must be able to stamp the title of lord upon a few, and its absence mark out the rest of mankind to do them homage.

On the conquests of the Goths tracts of their new possessions were allotted to their chieftans, who had distinguished themselves in the enterprize, these were called also real or propriety. Much remained still to dispose of, these were called the lands of the fisc, or the property of the community at large; and as such, committed to the charge and disposal of the sovereign. These he granted under the name of fees, to his favourites, on condition of furnishing him with military force when he should have occasion to engage with his enemies:

generation, by amazed and credulous nurses and children, impressed on our imagination at an early period, often make the stout heart of the soldier to tremble, or the firmer mind of the philosopher to shrink with fear, if, cast on dreary and unrequented wilds, in midnight darkness, or by the pale moonshine, which serves to light up objects of terror to his affrighted imagination, he have to wander alone, at a distance from home and every cheerful haunt of men; and these tormenting fears are felt when the tales are forgotten, and the absurdities despised.

enemies: the Feudal possessors disposed of these in smaller portions to their vassals, on the same military tenure. At first the grants were revokable at the will of the donors, and while cordiality and confidence remained between the sovereign and the barons, between these and their vassals, the feudal system was a powerful association for the practice of war; and fraught with the seeds of intestine divisions which afterwards broke out and for a time rendered a great part of Europe one continued scene of calamity and desolation. The Feudal lords soon extorted from the sovereign a confirmation for life of those lands which being at first purely gratuitous, had been bestowed only during pleasure. Not satisfied with this, they prevailed to have them converted into hereditary possessions. Contests frequently happened between the lords, and these were decided in private wars; they summoned their vassals to buckle on their armour, and appeared at their head to decide the dispute in the field; and as shelters to flee to from sudden invasions or when the battle went against them, castles were raised in their several districts. In the Feudal times the leaders of the people, in the day of battle, were, in times of peace, the arbiters of justice; they appointed courts in their particular districts, and assumed to dispense laws to the people: a few imperfect traditionary and local usages alone influenced the will of the baron, and disputed points were referred to a combat between plaintiff and defendant; or, to prove his innocence, the culprit was to plunge his arm in boiling water, to lift a red hot iron with his naked hand, walk blindfolded and barefoot over burning plowshares, or keep his arms extended for a full hour before a Crucifix, without any support: these dreadful experiments were called appeals to Heaven, and entered upon with a great form of devotion; and, whoever escaped unhurt, or came off victorious, was pronounced to be acquitted by the judgment of the Deity; this was called the Ordeal trial, which, with the judicial combat, long prevailed in the courts of Europe. The Christian religion, which they had embraced, as it was now professed, prevented not these dreadful calamities; the nobles, superior to all restraint, harassed each other with perpetual wars, oppressed their fellow-subjects, and humbled or insulted their sovereign. Yet these, with all their state, could neither read nor write, so little remained of literature in Europe; and, when a grant was to be confirmed by charter, when they could meet with a clerk or learned man, for so they termed any that could read or write, to negotiate this learned and important business, the baron or sovereign, in proof of his sincerity, and that he might be solemnly bound to fulfil the engagement, what he could not subscribe by writing his name, he formally marked with the sign of the cross; a custom observed by the illiterate at this day, and hence the subscribing an article is now called signing. What vestiges of the literature of the ancients might have escaped the first fury of the illiterate Goths, seem, during these times, to have fallen under a violence equally or perhaps more desperate. The Saracens having obtained possession of Egypt, the Europeans were deprived of paper, which they used to derive from the papyrus, a plant of that country. Parchment was scarce, and former writings, perhaps a book of Livy or Tacitus, were erased to make room for new compositions.

2. *Crusades.*] It was in these calamitous times, that the Crusades took place. Expeditions which engaged the attention of Europe, and ultimately brought about a wonderful change in its governments, laws, sciences, and manners in general. Before this period its several nations had but little acquaintance with each other. Unassociated by commerce, and unrestrained by general laws, intestine broils had harassed the people, and prevented refinement and a softness of manners from taking place among them. Now impelled by the same zealous motives, not only the gallant nobles of the age, with their martial followers, whom the boldness of a romantic enterprize might have been apt to allure; but men in the more humble and pacific stations of life, ecclesiasticks of every order, and even women and children engaged with emulation, in an undertaking which was deemed sacred and meritorious. Six millions of persons assumed the Cross, the badge that distinguished the zealous adventurers; and the endless little disputes which had stained the several cantons of Europe with blood, were now lost in one large common cause. The first efforts of valour, animated by enthusiasm, were irresistible; part of the lesser Asia, all Syria and Palestine, were wrested from the Mahometans; the banner of the cross was displayed on Mount Sion.

While we read with concern, of the mistaken zeal of the adventurers, who, from a partial regard for a particular spot of ground, could devote the lives of thousands to the sword, and perhaps implant a prejudice in the minds of the Mussulmans, against the most holy and peaceful religion, which is not yet removed from their breasts; we shall, perhaps, treat with affection and respect the amiable weakness of the first leader of these expeditions. Godfrey of Bouillon, a young and valorous prince, having, at the head of the numerous armies of Europe, taken possession of Jerusalem, in the profusion of the honours, which his adherents heaped on him, (and in those days heraldry was putting forth its vain and gaudy blossoms apace) in the midst of youth and military splendour, he refused to wear a diadem in that city where his Saviour had been crowned with thorns.

3. *Refinement of Manners.*] When the Crusades had associated the different nations of Europe together, what remained of magnificence or refinement in the east, by this intercourse naturally circulated to the western part of the continent; the first rendezvous of the adventurers was commonly in Italy, in which Venice, Genoa, Pisa, and other cities had begun to apply themselves to commerce, and had made some advances towards wealth, as well as refinement. They embarked there, and, landing in Dalmatia, pursued their route by land towards Constantinople. This magnificent city flourished in commerce; it was the only mart in Europe for the commodities of the East Indies; and here curious manufactures were carried on. Again Italy copied Greece, and disseminated its arts over the rest of Europe, when the Eastern Empire was reduced under the dominion of the Turks.

When the attention of Europe was turned to the recovery of Palestine, out of the hands of the Mahometans, it would have been accounted flagrantly impious to have raised commotions at home. In the mean time the barons, being deeply engaged in these remote enterprizes, some having even disposed of their patrimonies, in order to prosecute

prosecute these expensive expeditions, the sovereigns were gradually rising into power; another most effectual crush of the insolence of the nobles, and beginning of refinement in modern times, was the enfranchisement of cities, and forming them into bodies corporate, with the privilege of a decisive voice in enacting of laws. The manumission of the husbandman, from the debasement of slavery which they groaned under as a political institution, was a later refinement in the manners of Europe; a refinement, which, it is to be lamented, is not yet universally adopted in the northern parts of the continent. The gentle spirit of the Christian Religion, together with the doctrines which it teaches concerning the original equality of mankind, as well as the impartial eye with which the Almighty regards men of every condition, and admits them to a participation of his benefits, are inconsistent with servitude. The humane spirit of the Christian religion struggled with the maxims and manners of the world, and contributed more than any other circumstance to introduce the practice of manumission. The form of liberating the slave was executed in the place of worship, with solemnity, and considered as an act of piety highly meritorious and acceptable to heaven.

As many of the professors of Christianity have, in later times, unhappily adopted the practice of enslaving the poor helpless natives of Africa, and in defence of the cruel business, which degrades humanity, persuaded themselves that our brethren the negroes are somehow or other a race of men inferior to Europeans in natural rights; it may be well for us to recur to the days of our ancestors, and see the complexion our climates produce, whether it always stamped on its possessors the dignity which modern Europeans assume when they compare themselves with the people they call savages. In the feudal times the number of slaves in all the nations of Europe was prodigious, they composed the greater part of the people, and their lot was peculiarly oppressive and mortifying; distinguished from freemen by a peculiar dress, they were also obliged to shave their heads, and by this distinction they were reminded every moment of the inferiority of their condition: the life of a slave was deemed of so little value, that a very slight compensation atoned for taking it away; on very slight occasions they might be put to the rack on question; their masters had absolute power over their persons, and could punish them with death without the intervention of any judge. They united together in matrimony as husband and wife, but were not allowed the much revered ceremony of a priest, and themselves and their offspring were equally at the disposal of their master, who could transfer them like cattle or any other property.

4. *Laws.*] When the Germans embraced the profession of Christianity, they held the priests in a veneration similar to what they had paid to the Druids in their forests, what little remained of the laws and the learning of the Romans was in the possession of the ecclesiastics, who formed a regular system of jurisprudence, which, in contradistinction from the proceedings of the civil courts, was called the canon law; the arbitrary decision of the martial tribunals of the barons, from which there was no appeal, and the mildness and equity of the

proceedings in the ecclesiastical courts, established in regular orderly gradation, and through all which a cause might be carried by appeal, until it was determined by that authority which was held to be supreme in the church, intimated to the people the value of well digested laws.

The sovereigns aimed at a regular national code, and encouraged appeals from the courts of the barons; these by degrees sunk into contempt, while the royal courts, originally ambulatory, were held in fixed places, and at stated seasons, and by the regularity of their proceedings, and the equity of their decisions, became the objects of public confidence. Statutes were enacted for abolishing the practice of private wars; by degrees the judicial combat and ordeal trial were laid aside, and the manners of Europe gradually refined.

It was towards the middle of the twelfth century, that a copy of Justinian's Pandeets was accidentally discovered in Italy. Men of letters studied the new science with eagerness, and (in a few years professors of civil law were appointed, who taught it publicly in most countries in Europe) were rewarded for their labours with the honours which had heretofore been considered as peculiar to military valour; the dignity of knighthood, deemed a distinction superior to royalty, and which monarchs were proud to receive at the hands of their private gentlemen, this was alike conferred on the warrior and the man of science.

When the power of insolent nobles was not yet reduced under the domination of laws, their castles would, according to the manners of the owner, be regarded as seats of generosity and hospitality, or dreaded as dens of violence and oppression. In those days the knights turned out in succour of distress; the same spirit of enterprize which had prompted some to take up arms in defence of the oppressed pilgrims in Palestine, incited others to declare themselves the patrons and avengers of injured innocence at home. And when the Mahometans had prevailed in the contests for Jerusalem, and driven the Christians out of Asia, the knights became errant, they wandered about in quest for opportunities of asserting the cause of the feeble and oppressed, the widow and fatherless, ecclesiastics, &c. who could not bear arms in their own defence: their romantick and hazardous enterprizes were accounted equally religious and valiant, they purchased the hero universal respect, the tables of nobles and sovereigns were open to the adventurer, and they won him the company and esteem of the ladies. * Valour, humanity, courtesy, justice and honour were the characteristic qualities of chivalry. Knighthood was conferred upon the brave and the virtuous, with great solemnity in the public places of worship, by the hands of kings, who now began

* Perhaps the formality of the bridegrooms adorning the fourth finger of the sinister hand of his bride, with the annulet or wedding ring, in the ceremony of marriage, originated in the devices of the herald; and while they superstitiously revered it as an emblem of unity, or an amulet against dissention, it might serve to mark out the odious distinction between the wife of a freeman, who had been joined to her husband by the hands of the priest, and the spouse of the slave) who prohibited the ceremony of national establishments) united nevertheless to the man of her affection, in the religious bonds of solemn engagement and mutual love.

gan to be considered as the fountains of honour. These rewarded the heroes with their countenance, and adorned their shields with new achievements; by these armorial bearings families were distinguished; devices emblematic of the qualities of the hero, or expressive of his feats, began to be multiplied, and heraldry became a system for flattering of pride, and for marking out unbecoming distinctions among mankind, scarcely less complicated though far less ingenious, than that of the Egyptian hieroglyphics in antiquities.

Few marks of learning adorn the Gothick escutcheon, no great shew of geometrical lines or figures, of improved machines or instruments of science. Chivalry, in which valour, gallantry and religion were so strangely blended together, was better acquainted with crosses, crosslets and shells, with ribbons and filets, and locks of the hair and other little presents of their ladies, with beasts of the chase and instruments of war, than with matters of science; a monkish figure with a book or some such childish devise seems to have been the grandest monument they were able to erect in the system of heraldry to the honour of learning. Their ancestors used to wear skins of beasts round their shoulders, and to adorn their helmets; hence the crest, and the furs or drapery hanging round the escutcheon; the supporter of the shield was the hero who bore it on his arm in the field, he might be strong like a bull, and the family of his wife as fierce as lions, and equally concerned with himself to support the escutcheon unstained; and heralds have fixed two supporters to the shield which are sometimes beasts, birds, &c. as well as human figures. They used to fall on in battle with a shout of some sentence, and hence the motto in coats of arms.

The vanity of human nature seems soon to have conceived the idea of distinguishing honourable offices among mankind with external marks of distinction, as crowns, sceptres, &c. as well as with the dearly earned tribute of obedience religiously due to the maintainers of governments and laws. These shadows of power obtained among the ancients, and the man of the public had naturally the title importing his office; but our Gothic ancestors seem, in defiance to nature and to truth, to have reduced epithets or qualities, which are inherent things to a mechanical system, and applied them indiscriminately to every various disposition of man; and to this day, the people copying the manners of their fathers will seriously apply the titles of honourable, reverend, noble, excellent, gracious, most gracious, &c. without so much as knowing or having heard of the character of the officer; the laws of heraldry have established the titles, and the usages of the people coincide with the absurdity.

When the Europeans had become so far refined in their manners as to be capable of relishing improvements in science and letters, the languages of the ancients were studied with avidity. In the cathedrals and monasteries schools were erected, and the learned were rewarded with lucrative emoluments, and academical honours in the colleges and courts; caps, gowns, bands, &c. distinguished the learned professor; and the titles of bachelor, master, doctor, &c. were conferred according to his proficiency, and called his degree. In the places of worship the Latin tongue was generally used. The modern languages

languages of Europe were yet rude and uncultivated; the works of the learned in those days were wrote in the Latin; which, though they were not comprehended by the multitude at home, could be read by the learned all over Europe. The ancients, those copiers of nature, particularly the Greeks, had first listened to and cultivated the beauties of their own native language, which naturally produced elegant historians and poets, before they entered upon the more severe sciences. Our ancestors, on the contrary, delighted in abstruse metaphysical speculations, incomprehensible to themselves and to every body else: and while they were precisely acquainted with the most minute grammatical distinctions of the ancients, and indeed every thing but their beauties, their own rude languages, produced by the unkindly jumbling together of different and contrary tongues, remained uncultivated and unrefined. They loaded science with pedantic rules; the natural and easy forms which logic assumes, and rhetoric produces, they anatomized into wearisome discriminations; divisions, which the universities now think fit to lay aside. In those days, genius unloaded with learning, was necessarily shut out from the temple of science. Pedantry was mistaken for wit, and a memory charged with preposterous analyses, for a mind fraught with valuable information.

It was in latter times that the nations of Europe applied themselves to the cultivation of their own languages, to the study of mathematics, and to physical researches; they had already become familiar with the writings of the ancients, and hence derived beauties to their own. Their advances or improvements in science they soon acquired, and pursued their enquiries far beyond what the philosophers of Greece or Rome had ever conceived. Chymistry, derived from the Arabians, laid open to them the minute wonders of the works of creation. The discovery of the mariners compass, in the beginning of the fourth century, led to improvements and discoveries, which the ancients were unacquainted with; the invention of gunpowder, about the same time, while it quite altered the business of war, and perhaps rendered it rather less bloody and mischievous than heretofore, gave them a superiority in the laborious works of the mine, and to these the world will perhaps be indebted for that necessary article coal, when peace and population shall have planted fields of corn, and cheerful towns, in the place of solitary forests, and boggy meres. The fifteenth century was remarkable for producing the valuable discoveries of Printing, and engraving upon copper; arts whereby the history, the learning, and improvements of ancient and modern times, the representations of works of art, and productions of nature, are exhibited, and what we ought to prize above all, the records of the gospel are hereby diffused abroad among mankind. During this period, commerce appears to have undergone some considerable revolutions. When Constantinople, the mart of Europe, had fallen into the hands of the Turks, the trade and improvements of the Greeks devolved upon their neighbours the Italians or Lombards. Companies of these and the Jews settled in different countries, and carried on the commerce of the world. To the ports of Egypt, the rich productions of India were brought, and from hence they were taken and distributed over Europe by the Lombard merchants. The nations that lie round the

the Baltic, and along the coasts of the northern seas, distinguished themselves early as an enterprising maritime people; the depredations of these under the name of Danes and Normans, or Norwegians, have been severely felt in these islands; it is said that they were well acquainted with the coasts of North America long before that continent was discovered by the southern nations of Europe, and their contiguous situation with their business of fishing so necessary for their support, and the island of Iceland lying between their country and America, reducing one long perilous voyage to two less hazardous and tedious, seem to give the account the appearance of probability.

About the middle of the thirteenth century the spirit of commerce awoke in the north; to defend themselves against the pirates which infested their seas in those times, the cities of Lubeck and Hamburgh entered into a league of mutual defence; in a short time eighty of the most considerable cities scattered through those vast countries which stretch from the coast of the Baltic to Cologne on the Rhine, acceded to the confederacy, this was called the Hanseatic league, and the towns which composed it Hans Towns.

This confederacy became so formidable, that its alliance was courted, and its enmity dreaded by the greatest monarchs. The members of this powerful association formed the first systematic plan of commerce known in the middle ages, and conducted it by common laws, enacted in their general assemblies. They supplied the rest of Europe with naval stores, and pitched on different towns, the most eminent of which was Bruges in Flanders, where they established staples in which their commerce was regularly carried on. Thither the Lombards brought the productions of India, together with the manufactures of Italy, and exchanged them for the more bulky but not less useful commodities of the north. The Hanseatic merchants disposed of the cargoes which they received from the Lombards in the ports of the Baltic, or carried them up the great rivers into the interior parts of Germany.

As Bruges became the centre of communication between the Lombard and Hanseatic merchants, the Flemings traded with both in that city to such extent as well as advantage, as spread among them a general habit of industry, which long rendered Flanders, and the adjacent provinces, the most opulent, the most populous, and best cultivated countries in Europe.

By alluring Flemish artisans to settle in his dominions, as well as by many wise laws for the encouragement and regulation of trade, Edward III. gave a beginning to the woollen manufactures of England, and first turned the active and enterprising genius of his people towards those arts which have raised the English to the highest rank among commercial nations.

In the latter part of the fifteenth century the Portuguese discovered a passage to India by the Cape of Good Hope; and about the same time the Spaniards, attempting to sail thither by the west, under the adventurous and steady Columbus, a native of Genoa, fell in with America, and called it the New World, and the West Indies, to distinguish it from India in the East. From this period the western nations of Europe appear to have increased in political consequence,

to have improved in arts and sciences, and to have flourished in commerce; they acquired possessions in the opposite quarters of the earth, and became acquainted with every climate in the world. It was the interest of the people whose possessions were thus enlarged to improve with diligence the art of navigation; but the perfect knowledge of this extensive science includes that of almost every other. Whatever observations are made in contemplating the starry heavens, in measuring of lines, superficies and bodies on the surface of our earth, whatever discoveries in the physical world, and whatever improvements in the science of mechanics, even the study of languages and a knowledge of mankind, their complexions, manners and dispositions, their countries, laws, commerce, &c. all seem peculiarly interesting, to the mariner: fixed to no particular soil, he takes up his abode in one of the completest pieces of mechanism that human wisdom has produced; it is his chariot, his house, his labour, and his toy; in this he commits himself to the deep; he gives his sails to the winds, and observes with attention the phenomena of nature: he converses with the stars; they are his guides, as he traverses in his bark the pathless ocean; and, by mathematical calculation, he knows the distance of his desired port.

It is perhaps owing to commerce more than any other object, that modern Europe is advanced to the highest improvements ever yet attained in arts and sciences; this had rewarded the artisan for his ingenious production; the wandering sailor for his toils and perils, and the man of science for his most painful researches. The Portuguese gave themselves early to the study of naval affairs; these and the Spaniards, from their intercourse with the Mahometans, who long maintained their dominions in Spain, seem for a time to have been able to instruct the other nations of Europe, in astronomy and other sciences, but these diffused, experiments multiplied, and gave to the moderns a superior knowledge in the laws of nature, in works of art, and in mathematical theses. By help of optical instruments, they pushed forward their observations in the starry heavens, and also laid open the minute works of creation. By the prism the child became delighted, and the philosopher contemplatively amused: bounding to the tops of mountains, by help of glasses, youth extended his prospects over distant lawns and waters with delight; and feeble old age remaining below, by the same artificial help, read with comfort and ease the page that would otherwise have been to him an uninteresting blank through failure of sight. The dreadful lightning, which strikes affrighted mortals with astonishment and sometimes with blindness and death, by electrical machines was produced in a smaller degree, and thus applied to the kindly purposes of health. They waited no longer, with anxiety, for the coming of sunshine to mark out on the dial the hour of the day; whether the sky was cloudy or serene the passing hours were marked out as they rolled along, by the help of clocks; to these they gave a voice, and the clang of the hours diversified the silent watches of the night, as well as the seasons of business and labour. The changes of the weather were pointed out to the husbandman in his cottage, he saw by his barometer the approach of rain; and by counsel of these silent and philosophic monitors, he prepared for the business of dry weather, when his fields were yet drenched

drenched in water, and the rains not yet ceased. No longer, as in ancient times, need "two women be grinding at the mill," that is bruising corn to powder with great labour, between a couple of stones or flags by hand. Rivers and brooks of water are arrested in their progress, and made to perform that painful office as they hasten to the deep. And so far do they excel in the science of mathematics, that even the tumults of war, as well as the affairs of commerce, and the arts of navigation, are reduced by the moderns, to a mathematical system, and poor mortals are made to destroy one another by mechanical rules.

The sixteenth century is remarkable for the secession of Martin Luther, and after him John Calvin, from the church of Rome. In this age, the Diet of Spires also protested against the doctrines of that community, and hence the name of Protestant is derived. Before this period, during several centuries, Protestants had existed under different names and in different countries. In the southern parts of France, in the vallies of Piedmont, they were called Vallenses, Albigeneses, Leonists, &c. It is remarkable, that Reinerius, a Dominican, and Inquisitor General, says of this people, "They were older than any other sect, having existed from the times of the apostles: that there was scarce any place wherein that sect was not: that they had a great shew of piety, lived justly before men, and believed justly concerning God; therefore, says he, they were the greatest enemies the church of Rome had." Prodigious armies were raised against them; at first they defended themselves by arms, but being at last overcome, they were dispersed abroad: some fled into Calabria, others found shelter in Provence, and the neighbouring Alps. In England, Protestants were numerous in the fourteenth century; they were called Lollards, from Walter Lollard, who preached in Germany about the year 1313; of these was John Wickliffe, rector of Lutterworth. He translated the Bible into English, and wrote commentaries upon it: his doctrines spread over England, and a great part of Europe: they were advanced and propagated in Bohemia, and in support of these, John Hufs and Jerom, of Prague, suffered martyrdom: they had been summoned to the council of Constance, and Sigismund the Emperor granted them a pass; notwithstanding which, they were consigned to the flames. The Bohemians expected little security under a prince who had broken his word: they revolted from the emperor, and contended with him in arms. At first, they were victorious, under the famous John Ziska: at last, being overpowered, they retired to the mountains and caves, and were distinguished by the name of the Bohemian Brethren. It was not till the sixteenth century that the Protestants obtained a political or legal establishment; after this period, their profession in many places became national. Heretofore they had been a reclusive or persecuted people, and had little to do in cabinets or courts; while the see of Rome extended its jurisdiction over the nations of Europe, directed their councils, and influenced their manners.

The church of Rome, during many centuries—to relate on the one hand the ambition, intrigues, and wars, of some of their popes; the corruptions and licentiousness of some of their clergy, their gross superstitions, and severe persecutions: to declare on the other, the laudable

laudable zeal of others of their ecclesiastics, in reforming the superstitious, barbarous, and bloody manners, of our rude Gothic ancestors, their pious examples in liberating of slaves, and succouring of distress.

The Protestants—to tell their faithfulness through much suffering, their divisions, and their falling off, when they acquired political consequence, to the unchristian practice of persecution, in which so many thousands of themselves had suffered death, and which very few of the professions kept perfectly clear of: to exhibit all these, alike exceeds the design of this work, and the capacity of the writer.

It may here be remarked, however, that as it would be an indignity in social life to attempt to enforce affection and esteem, by methods of violence, so in a religious capacity, persecution seldom answers the intended purpose. There is a firmness experienced in his testimonies, by the well-meaning enthusiast, for the principles he has imbibed in the education of his youth, as well as by him whose understanding has been convinced, superior to the shackles of a bigotted education. Indeed it seems to signify but little what a man's outward profession or speculative opinion may be; as religion is altogether a work in the heart, and is in sum and substance nothing but Love: so those that have had this ruling principle, in their hearts, whatever might have been the notions of the head, have felt a divine support in their trials, which has mocked every attempt of bigotted violence to supplant it, and triumphed over whips and racks, flames and death. The martyrs in every age of persecution, of whatever nation, language, or profession, attest this remarkable and admirable truth.

END OF BOOK I.

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B O O K II.

D E S C R I P T I O N

O F T H E

E A R T H

U N D E R I T S

P O L I T I C A L D I V I S I O N S .

EARLY in this work it was observed that the earth has been divided into four quarters or principal divisions: the computed superficies of these, together with the conjectured number of their inhabitants, are as follows, viz.

Square miles of 60 to a degree.		Inhabitants.
Europe	2,749,349	124,600,000
Asia	10,257,487	450,000,000
Africa	8,506,208	150,000,000
America	9,153,762	160,000,000
Habitable earth	30,666,806	884,600,000
Seas, &c.	117,843,821	The supposed whole number of the pre- sent race of man- kind.
Whole globe	148,510,627	

P A R T VI.

D E S C R I P T I O N

O F

E U R O P E.

IN the fluctuating changes of human affairs—Europe, though by far the least, stands at present the most eminently distinguished quarter of the globe in its superior skill in sciences and arts, and consequently in its commerce and political consequence. Here also the profession of the Christian name is more generally diffused than in any other part of the earth. Its languages seem as mixed as its revolutions have been various, and all derived from these six original ones and their different dialects, viz. the Celtic, Slavonic, Teutonic, Greek, Latin and Gothic. Europe is bounded on the West by the Atlantic Ocean, on the North by the Icy Sea, on the East by Asia, and on the South by the Mediterranean, which separates it from Africa. It is situated between the 10th degree West and the 65th East longitude from the meridian of London, and between the 36th and 72d degrees of North latitude, extending about three thousand miles in length and two thousand five hundred in breadth. Its divisions are as follows:

Countries.	Bre- adth. miles	Len- gth. miles	Chief Cities.	Latitude.		Longitude from Greenwich.	
				D.	M. S.	in Degrees. D. M. S.	in Time. H. M. S.
England	360	300	London	51	31 0 N.	0 5 37 W.	0 0 22 aft.
Scotland	300	150	Edinburgh	55	57 57 N.	3 12 15 W.	0 12 49 aft.
Ireland	285	160	Dublin	53	23 11 N.	6 6 30 W.	0 24 26 aft.
Norway	1000	300	Bergen	60	11 — N.	5 45 — E.	0 24 0 bef.
Denmark	240	180	Copenhagen	55	40 45 N.	12 35 15 E.	0 50 21 bef.
Sweden	800	500	Stockholm	59	20 35 N.	18 3 44 E.	1 12 16 bef.
Russia	1500	1100	Peterburgh	59	56 0 N.	30 19 15 E.	2 1 17 bef.
Poland	700	680	Warsaw	52	14 0 N.	21 0 30 E.	1 24 2 bef.
Prussia	700	680	Warsaw	52	14 0 N.	21 0 30 E.	1 24 2 bef.
Dominions.	uncertain		Berlin	52	34 30 N.	13 26 15 E.	0 53 45 bef.
Germany	600	500	Vienna	48	12 40 N.	16 22 30 E.	1 5 30 bef.
Bohemia	300	250	Prague	50	4 30 N.	14 45 0 E.	0 59 0 bef.
Holland	150	100	Amsterdam	52	22 45 N.	4 45 30 E.	0 19 2 bef.
Flanders	200	200	Brussels	50	51 0 N.	4 21 45 E.	0 17 27 bef.
France	650	500	Paris	48	50 14 N.	2 20 0 E.	0 9 20 bef.
Spain	700	500	Madrid	40	25 0 N.	3 25 45 W.	0 13 43 aft.
Portugal	300	100	Lisbon	38	42 25 N.	9 9 39 W.	0 36 40 aft.
Switzerland	240	100	Bern	46	0 0 N.	7 40 — E.	0 28 bef.
Italy	750	400	Rome	41	53 54 N.	12 29 15 E.	0 49 57 bef.
Hungary	300	200	Buda	47	20 — N.	19 22 — E.	1 17 bef.
European Turkey	1400	730	Constanti- nople	42	1 24 N.	28 53 49 E.	1 55 35 bef.

S E C.

SECTION I.

BRITISH ISLES.

THE British Isles lie on the west of the continent of Europe.

1. *Inhabitants.*] The people may be considered under two different descriptions. First, The Aborigines or the descendants of the first possessors of the isles, as the Welch, Scotch Highlanders, Irish and Manks, all speaking dialects of the Celtic language. Second, That mixed race the English, descended from every emigrant robber and adventurer that invaded the land, whether Roman, Saxon, Dane or Norman. This medley of languages, which forms the major part of the people, is at the head of affairs in national proceedings, takes the lead in sciences and the arts, and whose manners are considered as the national character, is daily increasing by the former mixing with them.

Those who have travelled but a little, may have had frequent opportunities of observing what strange and unreasonable prejudices people sometimes entertain against those of another nation or district. These must have arisen from the relations of wonder-stricken travellers; and if such accounts were implicitly to be relied on, there is perhaps hardly a nation in Europe but their manners might be resolved into something barbarous or cruel. Each nation generally praises itself, and finds out something amiss in the manners of others. Thus the English say, We are brave, we are generous, we are charitable, we are free.

It is a delicate thing to draw national characters; it requires a mind divested of prejudices, and fraught with information which it would take ages to acquire. The English, however, from the humidity of their atmosphere, and the great use they make of animal food, are perhaps constitutionally more phlegmatic or less sprightly than those whose aliment is lighter, and who breathe a drier air; on the other hand, they are said to be more thoughtful and patient of fatigue, and consequently better fitted for arduous undertakings and tedious researches; but when we consider what other cultivated nations have done in severe sciences, and what the English have produced in poetical composition, we may be induced to blend them together in description.

The help afforded by the English to the sick and poor in their hospitals, buildings equal to palaces, and munificently supported by voluntary contributions, they are happily not singular: Other nations have infirmaries; but the parochial provisions made by law for the maintenance of the poor in South Britain, appears an exemplary

exemplary charitable institution. Well would it be if it were always supported in a Christian-like manner, if it were generally diffused all over the isles, and indeed all over the world! And their humane societies, numerous dispensaries and charity schools do honour to the present age.

Liberty, when rightly enjoyed, is one of the most invaluable of human privileges, and this the Englishman boasts is his peculiar blessing. After long and bloody struggles between the King and Barons of England, in the days of King John, the Barons obliged him to sign the great deed, so well known by the name of Magna Charta. This charter, by various subsequent acts and explanations, became applicable to the other English subjects, as well as to the barons, knights and burgesses; and before the reign of Queen Elizabeth, the distinction of villain and freeman was totally abolished. It has now become a maxim in the constitution, that the air of these islands is too pure for a slave to breathe. Two considerations, however, obviously offer to repress the Englishman's boast. First: The liberty he enjoys is not extended to the settlements abroad; there slavery is maintained and encouraged by law; moreover, impressing of seamen is warranted at home. Second: Unless he be a man of property, whatever may be his capacity or integrity, he is unqualified for the legislature, and almost every other species of magistracy; and, as if his personal privileges or the rights of his family were less dear to him than the security of property, he has not even a voice in choosing a representative, unless indeed he happens to be a freeman of some particular corporation; he cannot even take his gun into the fields to help himself to a dish of the fowls of the air, which own no master's crib; and this Gothic feature of the constitution seems, by recent acts of parliament, to be more strongly marked than before. His religious profession also affects his privileges as a citizen.

2. *Constitution.*] Cicero, the Roman lawyer, had imagined that a government might be formed, by combining part of the monarchical with part of the republican form; but his opinion met with a very cold reception; and Tacitus treats this and all other notions of advantageous mixed governments as only visionary schemes. Experience, however, has proved that this idea was not merely chimerical; for the English constitution, a mixture of monarchy, aristocracy and democracy, has continued through several centuries, and seems to enjoy some advantages which others have not. That palladium of liberty; the trial by jury, was practised from the first records of any regular government amongst them. By the singular constitution of these realms, the legislative power is lodged in parliament, which is composed of the sovereign, lords and commons collectively, and the executive power is in the hands of the crown.

The commons consist of men of a certain property in the kingdom who have no seat in the house of lords. Every one of them
has

has a voice in parliament either personally or by his representative. The counties therefore are represented by knights, elected by the proprietors of lands; and the cities and boroughs are represented by citizens and burgesses, chosen by the mercantile or supposed trading part of the nation. Every member, however, though chosen by one particular district, when elected and returned serves for the whole realm; for the end of his coming to parliament is not merely to serve his constituents, but also the commonwealth. This branch of the legislature had its beginning in the disputes of the barons and kings of England for power. It was in the reign of Henry III. son of King John, they were first assembled in Parliament; their specific powers at that time were hardly ascertained, but succeeding kings thought it well to court the affections of the people, and countenance the commons; and this most effectually repressed the power of the barons, who had hitherto insulted the sovereigns, and harassed the country with perpetual wars.

The lords are called spiritual and temporal; the former are the archbishops and bishops, the latter consist of all the peers of the realm.

By common law and constitutional custom, the crown, under certain limitations, is hereditary since the days of William the Conqueror; before that time, even estates and honours were not hereditary.

In politics the king cannot himself be deemed guilty of any crime, the law taking no cognizance of his actions, but only in the persons of his ministers, if they infringe the laws of the land. He has many prerogatives. He can levy war or make peace; negotiate with foreign courts; refuse his assent to any bill though it has passed both houses; convoke, adjourn, prorogue and dissolve the Parliament; elect his own council; nominate all the great officers of state, of the household, and of the nationally established church; and he is accounted the fountain of honour, from whence all degrees of nobility and knighthood are derived.

It is the peculiar privilege of the lords to have the supreme jurisdiction over all other courts. The proceedings in their courts are most expeditious, and from its sentence there is no appeal.

It is the indisputable right and privilege of the commons that all grants of subsidies and parliamentary aids should begin in their house, and be first bestowed by them.

Such are the constituent parts of a British parliament—the king, lords and commons; each of which is so necessary, that the concurrence of all three is required to enact any new law which has power to bind the subject; and as the three collectively form the supreme power, they can all together new model the constitution of the kingdom, the crown, and of parliaments themselves.

3. *Officers, Courts, and Proceedings.*] The great officers of the crown are the following nine: The lords high steward, high chancellor, high treasurer, president of the council, privy seal, great chamberlain,

chamberlain, high constable, marshal and high admiral. But several of these offices are now held by commission, being deemed too important to be entrusted to any individual.

The supreme courts of law are the Chancery, a court of equity next in dignity to the high court of parliament; the court of King's Bench, in which all matters determinable between the king and his subjects are to be tried; the court of Common Pleas, which takes cognizance of all pleas between subject and subject; and the court of Exchequer, instituted for the managing the revenues of the crown, and which possesses a power of deciding both according to law and equity.

For the more effectual execution of the law, sheriffs are annually appointed by the crown. It is the business of the sheriff to execute the king's mandates, and all writs directed to him out of the king's courts of judicature; to superintend elections; to impanel juries; to bring causes and malefactors to trial; to see all sentences, as well civil as criminal, put in execution. He likewise collects public fines, distresses and amercements into the Exchequer, and makes payments out. As his office is judicial, he also keeps a court for the purpose of hearing and determining all civil causes in the county under forty shillings, but which however is no court of record. The bailiffs are his officers, and he is himself the king's bailiff.

The coroner's office resembles the sheriff's, and when exception can be taken to the latter for partiality, he becomes the sheriff's substitute; for then the process must be awarded to him instead of the sheriff, for executing the king's writs. It is his peculiar business to make inquest, by means of a jury of neighbours, how and by whom any person came to a violent death, and to enter it on record as a plea of the crown.

Justices of the peace are also appointed in every county by the king's special commission, the principal of whom is the custos rotulorum or keeper of the records of the county. To them is entrusted the power of putting in execution great part of the statute laws relative to the poor, highways, felonies, &c. &c. and of examining and committing to prison such persons as are found guilty of breaking or disturbing the peace, and disquieting the king's subjects.

Constables are the next officers appointed for keeping the peace. They can imprison offenders till they are brought before a justice; and it is their duty to execute, in their respective districts, every warrant directed to them from any magistrate or a bench of justices.

The surveyors of the highways and overseers of the poor are officers appointed by statute, whose names import their duty or office.

The civil government in cities is something different from that of the counties, being directed according to their respective charters granted by different princes; with this limitation, that all civil causes

causes may be removed from their courts to the higher ones; and all capital offences are committed to the judges at the assizes. Some cities are counties of themselves, and chuse their own sheriffs. The mayor, aldermen and burgeses collectively make the corporation of the city, and in their court of judicature the mayor presides as judge.

Incorporated boroughs are governed almost after a similar manner; some of them by a mayor, and others by two bailiffs only; all which, during their mayoralty or magistracy are justices of the peace within their respective liberties.

For the better government of villages, the lords of the soil or manor have generally a power to hold courts called leet and baron, where their tenants attend, in order to obtain justice. The business of courts leet is chiefly to prevent and punish nuisances; and at courts baron, the conveyances and alienations of the copyhold tenants are enrolled, and themselves admitted to their estates on a descent or purchase.

There are other courts also besides those of the civil law. These are the marine, military and ecclesiastical courts.

The court of admiralty decides all causes that arise at sea out of the jurisdiction of a county. The lord high admiral or commission for that office is the supreme judge of it, and acts by deputy.

The court martial is for punishing desertion, mutiny and other offences of soldiers and officers. In this court the delinquent has not the benefit of a jury, and in time of war the king has a most absolute and arbitrary power in it.

In the national profession, or political establishment of worship, ecclesiastical courts and officers are various.

The officers in the church of England are the king at the head in succession to the pope, the archbishops, bishops, deans, archdeacons, rectors or vicars, deacons and curates, wardens, clerks and sextons, &c. Their highest court is the convocation, which is the national synod. This assembly is convoked with every new parliament; and its business is to consider the state of their church, to frame canons, and to call their clerical delinquents to account. But having filled the nation with disorder by their violent debates, and attempted, in the reign of Queen Anne, and at the commencement of that of George I. to raise their powers to a height inconsistent with the constitution, the crown was obliged to exert its prerogative of convoking the members and dissolving them at pleasure; and since that time they have never been permitted to sit long enough to deliberate on any affairs of importance. The convocation is divided into two houses; the higher is an assembly of archbishops and bishops, the lower is composed of the deans, archdeacons and proctors.

The court of arches in London, so called from the arches of Mary Le-Bow, where it was formerly held, is the most ancient consistory

consistory of the province of Canterbury, and to this all appeals from the judgment of the inferior ecclesiastical courts are usually made. The judge, who is distinguished by the appellation of dean of the arches, sits without any assessors, and determines causes without a jury. He takes cognizance of appeals, and processess are returnable before him in the common hall of the doctors commons. The pleaders and solicitors of this court are called advocates and proctors; the former are doctors of the civil law, and by the statutes of the court, the pleadings and petitions ought to be both in Latin. The court of audience has nearly the same authority with the preceding, and to this the archbishop's chancery was formerly joined. The prerogative court is one of those wherein wills are proved and administrations taken out. The court of peculiars relates to certain parishes which have a jurisdiction among themselves for the probate of wills, and are therefore exempt from the bishop's court. The court of delegates receives its name from its being composed of commissioners, delegated by the royal commission, but is no standing court. Every bishop has also a court of his own, called the consistory court; and every archdeacon, as well as the dean and chapter of every cathedral, have their respective courts.

The national ecclesiastic establishment of Ireland is the same as that of England.

Causes are usually brought into these courts either by citation, or by the presentment of their church-wardens. The parties are called the promovent and impugnans; and when the latter has appeared to the citation, the former gives in his libel or charge, and prosecutes it in a plenary or in a summary way. The impugnans then gives in his answer, and witnesses are examined and issue joined, and the cause tried and a decree made.

In civil courts when the plaintiff commences an action, if the jury finds a bill of indictment, the court orders the sheriff to take the body of the defendant, or bail for his appearance. The plaintiff then declares upon his action, and the defendant makes his plea; after which the bill may be amended, or there may be a reply to the plea, and a rejoinder to that reply, &c. till the cause is brought to an issue, in fact to be tried by a jury; or in law, to be tried by a consultation of judges, when judgment is given, and if not laid aside is enrolled and execution issued, &c.

Chancery (from whence the King's writ or letter is issued for the summoning of parliament) was instituted to moderate the rigour of the other courts that are tied to the strict rules of common law. The suit commences by bill, and proceedings in other courts are stopped by an injunction; then a subpoena issues to bring in the defendant, and he must appear by his fix-clerk to give in his answer. The plaintiff files his exceptions to it, and it is referred to a master of chancery to judge if it be a sufficient answer. The plaintiff replies, and the defendant rejoins, and witnesses are heard and

and examined, and the cause set down for a hearing and heard, and a decree is made and a writ of execution is issued.

The government of the kirk of Scotland is in the hands of ministers and elders; they have deacons also, whose business is pretty much the same as that of wardens in the church of England. They have also their tithes or tithes, and also judicial courts as in episcopal establishments. The courts established by law are the four following, viz. kirk sessions, presbyteries, provincial synods, and above all, a national or general assembly. This establishment, at various periods, proved so tyrannical over the people, having the power of the greater and lesser excommunication, which were attended by a forfeiture of estate, and sometimes of life, that the kirk sessions and other bodies have been abridged of many of their dangerous powers. The ecclesiastical order and government in the kirk of Scotland, however, seems far more impartial than that of episcopacy. None of their livings exceed two hundred pounds a year, few fall short of sixty, and none are less than fifty.

They are called Presbyterians from their maintaining that the government of the church, appointed in the New Testament, was by presbyteries, that is, say they, by ministers and ruling elders, associated for its government and discipline; and accordingly none of their ecclesiastics, considered as an individual, has an authoritative jurisdiction over another. Jurisdiction is competent for them only when they act in a collective body, or as a court of judicature; and then there is a subordination of one court to another, or appeals from the inferior to the superior courts.

4. *Religious professions.*] Besides these professions, which have a political establishment, and whose powers are interwoven with those of the civil constitution, there are numerous other societies which exist in their religious capacity independent of the state; to describe all these would be to give the history of almost every modern profession of the Christian religion. It would be difficult even to tell the names of these various societies. They are called by the general names of Papists or Roman Catholics, independents of various kinds, Seceders, who are burghers or anti-burghers, Anabaptists or Baptists, Methodists, Moravians, or the Brethrens Unity, and Quakers or Friends. There are other more minute distinctions made among this multitude of opinions, under names which import the different leaders which have been followed, the opinions embraced, or the charges of heresy which have been often very liberally bestowed, as those of Lutherans, Calvinists, Arminians, Sandymanians, &c. Unitarians, Trinitarians, Predestinarians, Antinomians, Arians, Socinians, &c.

5. *Revenue.*] The clear net produce of the several branches of the revenue of Great Britain, after payment of all charges of collecting and management, amounts annually to upwards of eight millions; besides two millions and a half raised annually at an average by the land and malt tax. Such immense sums, it might naturally

naturally be supposed, would be equal to any national exigence; but they are almost entirely applied to the discharge of the interest of the money raised on government securities; or, in other words, the national debt. This debt, which has been continually accumulating since the revolution, amounts at present to the sum of two hundred millions, sterling, and upwards; for the payment of the interest of which, and the charges of management, nearly eight millions, sterling, are annually required.

The national debt derived its origin from a mode of finance adopted soon after the accession of William III. From several expensive wars and political engagements about that æra, the expences of government were increased to an unusual degree, insomuch that it was deemed dangerous to raise all the expences of any one year by taxes to be levied within that space of time, lest the unaccustomed weight of them should create murmurs among the people. It was therefore projected to anticipate the revenues of posterity, by borrowing immense sums for the current service of the state, and to lay no more taxes on the subject than would suffice to pay the annual interest of the sums so borrowed; thus converting the principal into a new species of property, transferable from one person to another at any time, and in any quantity. Such was the foundation of what is now called the national debt; for a few long annuities, created in the reign of Charles II. by no means deserve that appellation:

The clear net produce of the several branches of the revenue of Ireland, after payment of all charges of collecting and management, does now amount annually to one million. The national debt is rather more than two millions. In the reign of Charles II. the revenues here being all made perpetual, the parliament was dissolved; and during the space of twenty-six years no parliament sat in Ireland until the year 1692, when the increase of the civil and military establishments, and other charges of government, having considerably exceeded the produce of the hereditary revenue, the crown found it necessary to call upon parliament for further supplies, which being granted on articles subject at the time to hereditary duties, were called additional duties, and their produce was given for one, two or three years only, and renewed every session, without further extension, until after the rebellion in 1715, when the commons of Ireland passed a vote of credit for the sum of 50,000*l.* to enable government to put the kingdom into a posture of defence against the invasion it was then threatened with. This vote of credit is considered as the origin of the national debt in this kingdom, and it was to be raised by loan, bearing an annual interest; certain duties were afterwards granted to defray that interest and sink the principal; these duties have increased or decreased from time to time as the debt has risen or fallen, and are distinguished in the public accounts under the title of loan duties.

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6. *Forces.*] In time of war, and particularly in the last, the land-forces of these kingdoms, natives and foreigners, have amounted with the militia to 177,000, exclusive of the volunteer associations in Ireland, which amounted to 40,000, and were independent of government, yet offered to co-operate with them when an immediate invasion was apprehended. The complement of seamen was 99,000.

7. *Territories.*] Besides their own native isles, the English lay claim to very extensive continental territories and islands in Asia and America, they have settlements also on the coasts of Africa, and hold Gibraltar from the kingdom of Spain, and some isles on the French coast *. In the settlements abroad, the people lose the privileges they inherit at home, they are under the government of the British legislature, and have no representatives therein; this also is the lot of the isle of Man; and it was but lately that the people of Ireland obtained the privileges and freedom of citizens, according to the English constitution or magna charta: 'till near the close of the last war, the acts of the British parliament declared that the kingdom of Ireland ought to be subordinate to, and dependent on, the imperial crown of Great Britain, as being inseparably united thereto, those vindictive laws however are now abolished, and the people of Ireland enjoy the same privileges as the inhabitants of Great Britain.

After this general sketch of the British isles, we may now consider them under their divisions.

Great-Britain, the largest, most populous, rich and fertile island in Europe, is supposed to have had its name from the word Brit, signifying painted or stained; because the ancient inhabitants painted their bodies to give them a more martial appearance. It includes England, Scotland, Wales and Berwick upon Tweed.

* The following comparative view of European shipping, uncertain as it must necessarily be, may give us some idea of the foreign trade of the English and of other nations. Suppose the shipping of Europe to be divided into twenty parts, then

Great Britain is computed to have	-	-	-	-	6
United Provinces	-	-	-	-	5
Denmark, Sweden and Russia	-	-	-	-	4
German Empire and Austrian Netherlands	-	-	-	-	3
France	-	-	-	-	3
Spain and Portugal	-	-	-	-	2
Italy and other Parts of Europe	-	-	-	-	1
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SECTION II.

ENGLAND and WALES.

England lies between fifty and fifty-six degrees north latitude, and between two degrees East and six degrees twenty minutes West longitude. It is bounded on the North by Scotland; on the East by the German ocean; on the South by the English channel, and on the West by the Irish sea.

1. *Divisions.*] England has been differently divided at different periods of time. When the Romans were masters of this country they divided it into

1. Britannia Prima, including the Southern parts of the kingdom.
2. Britannia Secunda, comprehending the Western parts, together with Wales.
3. And Maxima Cæsariensis, which reached from the Trent as far Northward as the wall of Severus between Newcastle and Carlisle, and in some parts as far as that of Adrian between the Forth and the Clyde.

After the Saxons became masters of England, they divided it into seven unequal parts, which they called kingdoms; each leader appropriating to himself those parts which he had either conquered himself, or been the chief instrument in reducing. It is supposed to have received its name from Anglen, a province of Denmark whence these adventurers came.

SAXON HEPTARCHY.

Kingdoms, comprehending the Counties of

- | | |
|--------------------|---|
| 1. KENT. | Kent. |
| 2. SOUTH-SAXONS. | Sussex, Surry. |
| 3. EAST-ANGLES. | Norfolk, Suffolk, Cambridge, Isle of Ely. |
| 4. WEST SAXONS. | Cornwal, Devon, Dorset, Somerset, Wilts, Hants, Berks. |
| 5. NORTHUMBERLAND. | Lancaster, York, Durham, Cumberland, Westmoreland, Northumberland and Scotland to the Frith of Edinburgh. |
| 6. EAST SAXONS. | Essex, Middlesex, and part of Hertford. |
| | 7. MERCIA. |

7. MERCA.

Gloucester, Hereford, Worcester, Warwick, Leicester, Rutland, Northampton, Lincoln, Huntingdon, Bedford, Buckingham, Oxford, Stafford, Derby, Salop, Nottingham, Chester, and the other part of Hertford.

About the year 890, Alfred the Great divided England into counties, which with some little alteration, continue to this day; and is generally called the modern division of England into counties and the six circuits.

HOME CIRCUIT.

*Counties.**Chief Towns.*

ESSEX.

Chelmsford, Colchester, Harwich, Malden, Saffron Walden, Bocking, Braintree, Stratford.

HERTFORD.

Hertford, St. Alban's, Royston, Ware, Hitchin, Baldock, Bishops - Stortford, Berkhamsted, Hemsted, Barnet.

KENT.

Maidstone, Canterbury, Chatham, Rochester, Greenwich, Dover, Deal, Woolwich, Gravesend, Deptford, Feverham Dartford, Romney, Sandwich, Sheerness, Tunbridge, Margate, Milton.

SURREY.

Southwark, Kingston, Guildford, Croydon, Epsom, Richmond, Wandsworth, Battersea, Putney, Farnham, Godalmin, Bagshot, Egham, Dorking.

SUSSEX.

Chichester, Lewis, Horsham, Rye, East-Grinstead, Arundel, BRIGHTHELMSTONE, New Shoreham, Petworth, Middlehurst, Hastings, Battle, Winchelsea.

NORFOLK CIRCUIT.

BUCKS.

Aylesbury, Buckingham, High - Wickham, Great Marlow, Newport Pagnel, Stony Stratford.

BEDFORD.

Bedford, Ampthill, Woburn, Dunstable, Luton, Biggleswade.

HUNTINGDON.

Huntingdon, St. Ives, Kimbolton, St. Neots, Godmanchester, Ramsey, Yaxley.

CAMBRIDGE.

Cambridge, Ely, Newmarket, Wisbech, Royston.

SUFFOLK.

<i>Counties.</i>	<i>Chief Towns.</i>
SUFFOLK.	Bury, Ipswich, Sudbury, Leostoff, Woodbridge, Aldborough, Bungay, Southwold, Brandon, Halefworth, Milden - Hall, Frumlingham, Lavenham, Hudley, Stratford, Long Stratford, Easterbergholt, Beccles, part of Newmarket.
NORFOLK.	Norwich, Thetford, Lynn, Yarmouth, Dearham, Falkenham, Wooton, Worsted.

OXFORD CIRCUIT.

OXON.	Oxford, Banbury, Chipping - Norton, Henly, Burford, Whitney, Taine, Woodstock, Dorchester.
BERKS.	Reading Abingdon, Windfor, Wallingford, Newberry, Maidenhead, Hungerford, Faringdon, Wantage, Pakenham.
GLOUCESTER.	Gloucester, Tewksbury, Cirencester, Blackley, Dursley, Leechlade, Cambden, Newham, Stow, Tetbury, Sudbury, Wotton, Marshfield, part of Bristol.
WORCESTER.	Worcester, Evesham, Bewdley, Droitwich, Stowerbridge, Kidderminster, Bromsgrove, Pershore, Tidbury.
MONMOUTH.	Monmouth, Abergavenny, Carleon, Chepstow, Newport, Pontipool.
HEREFORD.	Hereford, Lempster, Weobly, Kyniton, Rofs, Pemb, Ledbury, Bromyard.
SALOP.	Shrewsbury, Ludlow, Bridgnorth, Bishop-castle, Whitchurch, Wenlock, Wem, Newport, Oswestry.
STAFFORD.	Stafford, Litchfield, Newcastle-under-line, Burton, Pembridge, Wolverhampton, Stow, Rugely, Stone, Uttoxeter.

MIDLAND CIRCUIT.

WARWICK.	Warwick, Coventry, Birmingham, Stratford upon Avon, Atherton, Coleshill, Tamworth, Nuneaton, Aulcester.
LEICESTER.	Leicester, Melton-Mowbray, Ashby de la Zouch, Bosworth, Harborough.
DERBY.	Derby, Chesterfield, Wirksworth, Ashbourne, Balfover, Buxton, Bakewell.
NOTTINGHAM.	Nottingham, Newark, Redford, Southwell, Mansfield, Workop, Blithe, Tuxford.
	LINCOLN.

*Counties**Chief Towns.***LINCOLN.**

Lincoln, Boston, Stamford, Grantham, Grimsby,
Gainsborough, Spalding, Stanton, Horncastle,
Croyland, New Sleaford, Louth.

RUTLAND.

Oakham, Uppingham.

NORTHAMPTON,

Northampton, Peterborough, Brackley, Daven-
try, Oundle, Towcester, Rothwell, Welling-
borough, Higham Ferrers, Rockingham,
Kettering, Thrapston.

WESTERN CIRCUIT.**HANTS.**

Winchester, Southampton, Portsmouth, An-
dover, Basingstoke, Christchurch, Petersfield,
Lymington, Ringwood, Rumsay, Arlesford,
Newport, Yarmouth, and Cowes in the Isle
of Wight.

WILTS.

Salisbury, Devizes, Marlborough, Malmesbury,
Wilton, Warminster, Chippingham, Crick-
lade, Trowbridge, Bradford, Calne.

DORSET.

Dorchester, Lyme, Sherborn, Shaftesbury, Pool,
Blandford, Bournemouth, Weymouth, Aleboome,
Winburn, Wareham.

SOMERSET.

Bath, Wells, part of Bristol, Taunton, Bridge-
water, Wincanton, Ilchester, Watchet, Mine-
head, Milbourn Port, Glastonbury, Dulverton,
Wellington, Dunster, Somerton, Yeovil,
Axbridge, Chard, Bruton, Shepton-Mallet,
Froom, Croftcombe.

DEVON.

Exeter, Plymouth, Barnstaple, Biddeford, Ti-
verton, Dartmouth, Tavistock, Oakhampton,
Topsham, Honiton, Ashburton, Crediton,
Torrington, Moulton, Totnefs, Axminster,
Plympton, Ilfracomb.

CORNWALL.

Launceston, Falmouth, Truro, Saltash, Bod-
myn, St. Ives, Padstow, Tregony, Fowey,
Penryn, Kellington, Leftwithiel, Leskard,
Helston, Redruth, Penzance.

NORTHERN CIRCUIT.**YORK.**

York, Leeds, Wakefield, Halifax, Rippon,
Pontefract, Hull, Richmond, Scarborough,
Malton, Sheffield, Doncaster, Whitby, North-
allerton, Sherbourn, Bradford, Tadcaster,
Borough-bridge, Gisborough, Heydon, Pick-
ering, Wetherby, Beverly, Burlington, Hew-
den, Knaresborough, Barnsley, Skipton, Rip-
ley, Yarm.

DURHAM.

<i>Counties.</i>	<i>Chief Towns.</i>
DURHAM.	Durham, Stockton, Sunderland, Stanhope, Barnard - Castle, Hartlepool, Awkland, Darlington.
NORTHUMBERLAND.	Newcastle upon Tyne, Berwick Tinmouth, Morpeth, Alnwick, Hexham, North-Shields, Wooller.
LANCASTER,	Lancaster, Manchester, Preston, Liverpool, Warrington, Clithero, Ormskirk, Wigan, Rochdale, Kirkham, Hornby, Poulton, Bury, Hawkshead, Newton.
WESTMORELAND.	Appleby, Kendal, Lonsdale, Burton, Ambleside, Kirby Steven, Orton, Brough, Milthorpe.
CUMBERLAND.	Carlisle, Cockermouth, Whitehaven, Penrith, Kefwick, Brampton, Holm, Egremont, Longtown, Ravenglass, Wigton, Workington, Kefwick, Ireby, Allonby, Maryport, Harrington.

Middlesex being the seat of the supreme courts of judicature is not comprehended in any circuit; nor is Cheshire, as being a county palatine.

<i>Counties.</i>	<i>Chief Towns.</i>
MIDDLESEX.	London, Westminster, Uxbridge, Brentford, Barnet, Highgate, Hamstead, Kensington, Staines, Enfield, Edgworth, Hackney, Hampden-Court, Chelsea.
CHESTER.	Chester, Nantwich, Macclesfield, Congleton, Northwich, Frodsham, Stockport, Sandwich, Middlewich, Malpas, Knutsford, Wirleach, Haughton.

CIRCUITS OF WALES.

NORTH EAST CIRCUIT.

<i>Counties.</i>	<i>Chief Towns.</i>
FLINT.	Flint, St. Asaph, Holywell, Caerwys.
DENBIGH.	Denbigh, Wrexham, Ruthin.
MONTGOMERY.	Montgomery, Llanidlos, Llanvlyin, Machynleth, Welchpool.

NORTH WEST CIRCUIT.

ANGLESEY.	Beaumaris, Llanrickmead, Holyhead, Newburgh.
CAERNARVON,	Bangor, Caernarvon, Aberconway, Pullilly.
MERIONETH,	Bala, Dolgelhe, Haerlech.

SOUTH

SOUTH-EAST CIRCUIT.

<i>Counties.</i>	<i>Chief Towns.</i>
RADNOR.	Radnor, Prestein and Knighton.
BRECON.	Brecknock, Bealt and Hay.
GLAMORGAN.	Llandaff, Cardiff, Cowbridge, Swansey, Neath and Penrife.

SOUTH-WEST CIRCUIT.

PEMBROKE.	St. David's, Haverfordwest, Pembroke, Fishguard, Milfordhaven, Kilganning, Newport, Tenby and Whilston.
CARDIGAN.	Cardigan, Aberistwyth, Llanbador St. Peter, and Tregaron.
CAERMARTHEN.	Caermarthen, Kidwelly, Llandilovawr, Llanekthy, Llangharn and Llanindoverly.

In ENGLAND there are

40 counties, which send to parliament	-	80 knights.
25 cities (Ely none, London four)	-	50 citizens.
167 boroughs, two each	-	334 burgeses.
5 boroughs (Abington, Banbury, Bewdley, Higham-Ferrers, Monmouth) one each	-	5 burgeses.
2 universities	-	4 representat.
8 Cinque ports (Hastings, Dover, Sandwich, Romney, Hythe, and their three dependants, Rye, Winchelsea and Seaford) two each	-	16 barons.

WALES.

12 counties	-	12 knights.
12 boroughs, (Pembroke two, Merioneth none) one each	-	12 burgeses.

SCOTLAND.

33 shires	-	30 knights.
67 cities and boroughs	-	15 burgeses.

Total - 558

2. *Climate, Soil and vegetable Productions.*] The exhalations from the surrounding sea render the air humid, and the weather changeable, but prevent the extremities of heat and cold experienced on the continent, and clothe the ground with a perpetual verdure.

The soil in different parts is variously diversified, and in some places is deep, in others shallow; but whatever be its nature and quality the English husbandman well knows how to convert it to his use. No country in the world has carried agriculture to a greater

degree of perfection than the English. Besides the great variety of esculent plants which are produced here for the use of man and brute, hemp and flax, with woad and madder for dying, are cultivated in England. The counties of Kent, Surry, Essex and Hampshire produce the largest quantities of hops, which now make a very considerable article of trade. Saffron is produced chiefly in Essex, Suffolk and Cambridgeshire, and esteemed the best in the world.

Soon after the Norman conquest England abounded with forests. It was the barbarous temper of the Conqueror to prefer his own diversions to the peace and convenience of the inhabitants, and accordingly many extensive tracts of cultivated land and towns were laid waste, to make room for forests for the King and his nobles to hunt in. The number of them was sixty-nine, but they are now reduced to a very few, the principal of which are Windsor Forest, New Forest, the Forest of Dean, and the Forest of Sherwood. These large tracts of land formerly abounded with oak, beech, maple, poplar, elm, chestnut, walnut trees, &c. but from the little care that is taken to plant young trees as the old ones are cut down, has been feared that this maritime nation will be destitute of timber proper for ship-building.

3. *Animals.*] There are very few animals peculiar to England. The bull-dog, the mastiff and the cock however are here remarkable for their courage and fierceness, which they are observed to lose when carried to other countries; and their horses are the finest in the world both for speed and strength. It would be well their improvements in the breed of these animals were founded on more humane and virtuous principles. The English oxen are large and fat; the sheep are of two kinds, one bred in the Downs and upland pastures, the other on the lowlands of Essex and Lincolnshire; the flesh of the former breed is preferred, and the fleeces of the latter. It is computed that there are no less than eight millions of fleeces annually shorn in England. The other quadrupeds are asses, cows, deer, hogs, hares, rabbits, foxes, squirrels, cats, otters, badgers, hedgehogs, moles, &c.; formerly wolves were very numerous.

The birds are nearly the same as in other parts of Europe, viz. turkeys, peacocks, common poultry, as cocks, pullets, capons, swans, ducks, pigeons, &c. The wild kinds are bustards, wild geese, brent geese, wild ducks, teal, widgeon, plovers, pheasants, partridges, woodcocks, growle, quail, snipes, wood pigeons, land-rails, hawks of various kinds, kites, buzzards, herons, bitterns, crows, rooks, ravens, magpies, jackdaws, jays, blackbirds, thrushes, nightingales, goldfinches, bullfinches, chaffinches, linnets, larks, yellowhammers, with a vast variety of other small birds. The Cornish chough, and the wheat ear, are supposed to be peculiar to England; the former is found plentifully in Cornwall, and the latter, which is equal to the ortolan in the delicacy of its flesh and flavour, in Suffex.

With

With regard to fish, few countries in the world have a greater variety. The rivers and ponds abound in salmon, trout, eels, pike, carp, tench, barbel, perch, gudgeons, smelts, roach, dace, plaice, flounders and craw fish. In some of the lakes of Wales, and in Winandemeer in Westmoreland, is found a very delicate fish called a char; it is of the trout kind, and thought to be peculiar to England. The surrounding seas are full of cod, mackarel, mullets, bafe, guardfish, haddock, whittings, herrings, pilchards, skate, turbot, soles, hollybuts, of which the most famous fishery is on the coasts of Cornwall and Devonshire, and what are preferred to all others by the voluptuous, john-dories and mullets. Shell-fish are also found in plenty, as lobsters, crabs, prawns, shrimps, oysters, scallops, cockles, muscles, wilks, periwinkles, &c. The coasts are sometimes visited by whales, and by vast numbers of porpoises. In some parts a few seals are seen upon the rocks, but not frequently.

The principal reptiles of this country are vipers, snakes and worms; and the insects, bees, humble bees, hornets, wasps, ants, gnats, flies in great variety, and many other insects common to the other parts of Europe.

4. *Mineral Productions and Waters.*] Copper, lead, iron and coal are found in many of the counties of England—wadd or black-lead only in Cumberland, where the mine is opened once in about seven years to supply the rest of the world. But the tin mines of Cornwall and Devonshire are the most valuable*; the miners alone amount to one hundred thousand men.—This metal, besides its enriching the proprietors, affords a considerable revenue to the Prince of Wales, who is also Duke of Cornwall, and an important article of trade to the English in almost every market of the known world. The mundic found in the Cornish tin mines was of no value till the beginning of the present century, when Gilbert Clarke discovered a method of smelting of it, and now it brings in 150,000l. annually. No gold mines have hitherto been discovered in England, but small quantities of that metal have been found in the Cornish tin ore. There are several silver mines in Devonshire, but they have not been worked for many years, though they produced seven hundred pounds of fine silver in the year 1296.

Fuller's earth is found in several counties, and is found so necessary for the woollen manufacture that the exportation of it is prohibited.

Marble, slate, freestone, and a great quantity of other useful substances, are found in the mines and quarries of England.

There are many medicinal waters in England, the principal are the hot-baths of Bath and Bristol in Somersetshire, and those of Buxton in Derbyshire; the mineral waters of Scarborough, Harrogate, Tunbridge, Dulwich, Epsom and Aſton.

B b 2 5. *Face*

* It is remarkable they were known several centuries before the christian era, and have constantly been worked ever since that remote period of time.

5. *Face of the Country, Mountains, Rivers and Lakes.*] Whatever advantages other countries may derive from luxury of soil, England thrives by the hand of industry, and exhibits scenes cheerful and warm. Flourishing cities and thriving towns, cheerful villages and comfortable cottages, with surrounding fields and meads, vallies and hills, and plains and downs, yellow with corn, green in perpetual verdure, or speckled with thousands of flocks and herds, diversify the prospect. In the ports are seen vessels fraught with the produce of every climate, or bearing hence in Exchange the curious manufactures of England. Unnumbered are the divisions into which the country is intersected by roads, rivers and canals; in the latter are seen boats passing and repassing; on the roads the ponderous waggons labour along, and the lighter vehicles of convenience or pleasure drive rattling over the grounds both night and day.

The mountains of England seem diminutive if compared with the Andes, the Atlas or the Alps. The principal ones are the Peak in Derbyshire, the Endle in Lancashire, the Skiddaw, Derwent-Fells, the Wrynose and Lanvelling in Cumberland, the Wolds in Yorkshire, the Wrekin in Shropshire, and the Cheviot hills on the borders of Scotland. But besides these there are many lofty hills, generally called Downs, scattered over the whole country, some of them forming long ridges or chains, as the Cheltern hills in Bucks, the Malvern hills in Worcestershire, the Cotswold hills in Gloucestershire, and the South Downs in Sussex.

England is well watered with rivers, which beautify the landscape, fertilise the soil, and forward the business of manufactures and commerce; the principal are the Thames, the Medway, the Severn, the Trent, the Ouse, the Tyne, the Tees, the Avon, the Eden, the Derwent, the Ribble, the Mersey and the Dee.

The lakes of England are but few, though it appears from history, and indeed in some places from the face of the country, that meres and fens have been very frequent in England 'till drained and converted into arable land by industry. The chief lakes now remaining are Soham mere, Wittlesea mere, and Ramsey mere in the isle of Ely in Cambridgeshire. All these meres in rainy seasons are overflowed, and form a lake of forty or fifty miles in circumference. In Westmoreland Winander mere is ten miles long and two broad, and very deep and clear; and in the mountainous parts of Cumberland there are many large and beautiful broadwaters or lakes.

6. *Manufactures and Commerce.*] England is superior to every other nation of the world in the variety and excellence of its woollen manufacture. This is accounted the staple trade of the kingdom, and in the house of Lords the Chancellor, with the great-seal and mace lying by him, sits before the throne on the first of the woolpacks, which, from an ancient custom, are laid across the room. Its cotton and silk works are also very considerable.

The

The weaving of stockings was first invented and is now very extensively carried on in this country. Paper is likewise made in almost every part of the kingdom, and there are but few towns without their manufactures of hats. In the making of porcelain and delphit ware many thousands are constantly employed; they are unequalled in the execution of these beautiful wares, and these are exported not only to the different countries of Europe and America, but even to the East Indies; and such is the excellence and ingenuity of the artificers of metals, that were we willing to adopt the mythology of the ancients we might say that Vulcan had fixed upon England as his especial place of residence. Sheffield and Birmingham have long been famous for their hard-wares, but these manufactures are not confined to these two particular towns. Artificers in brass and iron are to be found all over the country, and whether we regard their massive or minute works, the ponderous apparatus of ships, mills, &c. or the smaller conveniences of clocks, watches, &c. we may alike admire their abilities and improvements. Besides all these there are various other manufactures too numerous to mention here. These, the Produce of their mines, as iron, lead, tin, copper, pit-coal, copperas, allum, &c. their cattle, (especially their horses, which form a principal article of commerce) corn, butter, cheese, pork, beef, biscuit, &c. and the productions of their fisheries, form the exports of this trading nation.

England did not begin to feel its consequence as a commercial nation 'till the reign of Queen Elizabeth. That Princess first opened the eyes of her subjects to the advantages which their situation naturally held out to them, and generally the efforts of her successors have been directed to the same end.

During the infancy of foreign commerce it was judged expedient to grant exclusive charters to particular bodies or corporations of men, hence the East India, South Sea, Hudson's Bay, Turkey, Russia and Royal African Companies first took their rise; but the trade to Turkey, Russia and Africa are now laid open; and it is the opinion of some, that if commercial restrictions were entirely abandoned in every quarter of the world it would tend to the public benefit, to the increase of navigation, and to the improvement of the national revenue.

7. *Curiosities, natural and artificial.*] Among the natural curiosities of England the most remarkable are the ebbing and flowing well, the unfathomable caverns, and the mountains of the Peak. Similar curiosities, on a smaller scale, are to be met with in other parts of the country, and also petrifying as well as hot and cold mineral springs.

The curious works of art are ancient and modern. The antiquities are British, Roman and Saxon or Danish. The British antiquities consist chiefly of circles of stones or altars; these are generally rude and unfashioned with any chissel, like the memorials of the patriarchs. Vestiges of these are to be met with in Cornwall, Devonshire,

Devonshire, Oxfordshire, Cumberland and many other parts of England; but the most remarkable monument of this kind is Stonehenge on Salisbury-plain in Wiltshire; from the amazing magnitude of the stones it has even been doubted whether it was a production of human art; some have imagined that the stones are artificial, and were made on the spot, from a persuasion that the ancients had the art of making stones with sand and a strong lime or cement, but most authors are agreed that they were brought from a quarry of stones called the Grey Wethers on Marlborough Downs, fifteen miles from the spot. The upright stones are fixed in a kind of sockets dug in a chalky soil, with small flints driven in between the stone and the socket; they are from twenty to thirty feet high, and of a prodigious thickness; they have tenons on the top, and are connected together at the top by overthwart stones or imposts of enormous size, which are morticed to receive the tenons. The outermost circle is near one hundred and eighty feet in diameter; between this and the next there is a spacious walk, which has a grand effect. This misshapen sabrick is supposed to have been the principal place of worship in England, where the arch-druid resided and officiated in person.

The Roman antiquities in England consist chiefly of altars, coins, monumental inscriptions and military ways. The remains of Roman camps are also still perceptible in almost every county; but the most amazing monument of the Roman power in England was the wall of Severus, running through Northumberland and Cumberland, from Tinmouth to Solway Frith, about eighty miles in length. It was built to prevent the Picts and Scots from making incursions into the Roman territories in Britain, but a principal part of it is now converted into a road.

The Saxon antiquities found in England consist chiefly of old cathedrals and castles, and particularly camps, of which vestiges are found in various parts of the country. But the most remarkable antiquity of the Saxons is the rude figure of a horse cut on the side of a green hill, a little to the north of Upper Lambourne in Berkshire. The hill is called White-horse Hill, and the figure takes up near an acre of ground. Saxon coins have been found in various parts of England, and in the British museum there are preserved many specimens of Saxon learning, though it seems to have been then confined to a few persons. The charters, of which several are still preserved, are written in a neat and legible hand, but the signatures are nothing more than a plain cross, the name of the donor being added by the writer of the charter. The Danish antiquities are but few, and nearly resemble those of the Saxons.

Among the greatest modern works of art in this country we may reckon the shipping, mines and canals. The coal works in the north of England, are, some of them, especially in the vicinity of Whitehaven, carried to a vast extent beneath the sea; and the canals are carried upon lofty arches over high roads, navigable

rivers

rivers and extensive vallies, and for miles underground they are cut through the heart of mountains.

8. *Schools and learned Men.*] The universities of England are those of Oxford and Cambridge. The schools of Westminster, Eton and Winchester are also eminent seminaries of learning; and at Woolwich and Portsmouth are two royal academies: Besides these almost every town and even village has its academy or schools, where literature and sciences, or at least their rudiments, are regularly taught.

To tell the progress of science and the men that excelled therein from the days of Alfred the great, who, in those early days, was himself the friend and patron of learning, would require a very intimate acquaintance with the writings of the numerous English authors, and take volumes instead of a paragraph. Perhaps no nation since the revival of literature in Europe has exceeded or even equalled that mixed race the English, either in the poetic flights of fancy, or the more laborious works of studious research. Some of Alfred's immediate descendants were eminent for their learning. Early in the thirteenth century, in the reign of Henry III. Roger Bacon, a friar at Oxford, wrote treatises on the flux and reflux of the sea, on cosmography, astronomy, optics, metallurgy, and upon the impediments of knowledge. In the days of Henry VIII. the names of Wolsey, Leland and others were eminent in literature: At this time encouragement was given to learned foreigners to settle in England. Edward VI. during his short life, encouraged those foreigners, and patronised learning. During the bloody reign of the bigotted Mary, learning, as well as religious liberty, suffered an almost total eclipse. Elizabeth, her sister, was herself a learned princess: In her reign the Earls of Essex and Southampton, and Sir Philip Sidney, were learned themselves and the patrons of genius. Shakespeare, Spenser, Camden and other writers flourished during this period. James I. was an author and a patron of learning; he encouraged foreigners, and conferred honorary titles and pecuniary emoluments on the second (or Francis) Bacon. His son Charles I. had a taste for the polite arts, especially sculpture, painting and architecture. He was the patron of Rubens, Vandyke, Inigo Jones, and other eminent artists; and had it not been for the civil wars he seemed likely to have converted his court and capital into a second Athens. The collections he had made for that purpose, considering his pecuniary difficulties, were stupendous: such was his expense he possessed four and twenty palaces, most elegantly furnished. His favourite, the duke of Buckingham, imitated him in that respect, and laid out the amazing sum of four hundred thousand pounds sterling upon his cabinet of paintings and curiosities. The Earl of Arundel, however, has been considered as the great Mæcenas of that age, and by the immense acquisitions he made of antiquities, especially his famous marble inscriptions, may be considered as a patron or encourager of literature,

ture, equal to the greatest of the Medicean princes. The enthusiasts for fine arts may account Cromwell a Goth: during his time the King's furniture was all put to sale; his pictures, disposed of at very low prices, enriched the principal collections of Europe. Even his palaces were pulled to pieces, and the materials of them sold. Action, however, brings forward dormant or latent powers into excellence; and it has been thought that the force and compass of our tongue were first put to trial in that period of civil commotions, the speeches of the parliament orators being of a strain much superior to what any former period produced. And Cromwell himself was not insensible to literary abilities: Usher, notwithstanding his being a bishop, received a pension from him; Marvel and Milton were in his service; Waller, who was his relation, was rewarded by him. He gave one hundred pound a year to the divinity professor at Oxford; and intended to have erected a college at Durham, for the benefit of the northern counties. The reign of Charles II. was distinguishable for the great proficiency to which it carried natural knowledge, especially by the institution of the Royal Society. It has been accounted by some the Augustan age in England. Certain it is that the *Paradise Lost*, by John Milton, was published at that time, than which no other poem has received higher encomiums, as uniting in itself all the excellence of all the ancients. The names of Boyle, Hooke, Sydenham, Harvey, Temple, Tillotson, Butler, Cowley, Waller, Dryden, Wycherley, Otway, and many others, all distinguished this period by their productions; it would have been well they had universally been as eminent for their piety. In this reign lived Christopher Wren, the eminent architect; and painters were numerous.

The reign of Queen Anne has generally been accounted the Augustan age in England. To the names of Locke, Halley, Ray, and a number of others, with the celebrated Newton, in her time were added those of Addison, Prior, Pope, Swift, Arbuthnot, Congreve, Steele, Rowe, and many other eminent writers, in the catalogue of authors of that day. Perhaps when the present age shall have passed away, posterity may look back on its improvements, and call it the golden age of sciences and the arts. Perhaps superior abilities to those which distinguish the reign of the present king, in almost every department of literature and the arts, were never known in any age or nation of the world.

9. *Principality of Wales.*] This country is politically included in England, with which it joins, and its natural history is pretty much the same. This country was formerly famous for its poets and bards, and was the seat of learning when England scarcely knew the use of letters. It abounds in British and Roman antiquities, which its own learned authors have particularly described. The isle of Anglesea, called Mona by Tacitus, was the principal seminary of the Druids, and the chief seat of their rites and religion, except Stone Henge on Salisbury Plain; and monuments similar to that, but on a smaller scale,

scale, are numerous here. Among the Roman antiquities is Caerphilly-castle in Glamorganshire, the remains of which still shew it to have been once a beautiful fabrick: one half of the round tower is fallen down, and the other overhangs its basis above nine feet, affording as great a curiosity as the celebrated leaning tower at Pisa in Italy. The greatest curiosity of modern art in Wales we may reckon the beautiful cast iron bridge at Colebrook Dale.

Among the many lofty mountains of Wales, where the natives retreated and made so many long and hardy struggles against the Roman, Anglo-Saxon and Norman powers, the most remarkable are Snowdon in Caernarvonshire, and Plinlimmon, which lies partly in Montgomery and partly in Cardiganshire. This country likewise abounds in lakes, the principal of which are Lyhn Tigid, or Pimble Meer, and Lyhn Savedhan, or Brecknock Meer; the latter of which is so full of fish, that the inhabitants say two-thirds of it is water and the rest fish. The road from England to Holyhead runs over a lofty mountain called Penmanmoer, and affords a grand and awful scene to a stranger; over his head hangs a craggy and enormous rock, threatening every moment to crush him with its fall, and below him a frightful precipice, with the waves of the sea tremendously dashing against the foot of the mountain.

10. *History.*] England was inhabited originally by a people called Britons, of the same stock with the ancient Gauls or Celtæ. The first conquest that was made of this part of the island was by the Romans; it was begun in the year 43 under the Emperor Claudius, and was completed in 78 under Domitian. Julius Cæsar had invaded this island in the years 54 and 53, before the Christian æra, but he did not effect a conquest, his forces being repulsed by the natives. In 410 the Romans, being no longer able to defend so distant a province, relinquished it to the old inhabitants, who, calling in the Saxons from Germany to assist them to repel the invasion of the Picts and Scots, were all conquered by them, except those who retired into Wales.

The Saxons, arriving at different times, formed seven different kingdoms, which having some kind of union among themselves, are all together called the Heptarchy: this continued through three or four centuries, till the several kingdoms which composed it were all reduced by Egbert, one of the princes, into the one extensive kingdom of England about the year 827.

About the year 866 the Danes, under their King Ivar, invited by the Earl Bruern Bocard, made a descent upon England, and conquered Northumberland. Soon after this they conquered East Anglia; and in 873 they were masters of Mercia. About 877 they were in possession of the whole kingdom, King Alfred being obliged to hide himself from their pursuit; but, soon after, this prince entirely defeated them, and forced them either to abandon the island or submit to his government: those who chose the latter settled in East Anglia. They generally revolted at the beginning of

of every reign; and about 1003 Swein, King of Denmark, conquered all the northern parts of England, and King Ethelred retiring into Normandy the whole country submitted. Upon his death the Danes proclaimed his son Canute, king; but the English having recalled Ethelred the island was, as it were, divided between them till 1017, when Canute became master of all England. Under Edward the Confessor, in 1041, the Saxon line was restored without bloodshed; but the Normans, under William the Conqueror, subdued the kingdom in 1066, and the Kings of England ever since have been the descendants of this prince. In 1283 Wales was subdued by Edward I. Lewellen, their last king, being defeated and slain.

SECTION III.

SCOTLAND.

Scotland lies between fifty-four and fifty-nine degrees North latitude, and between one and six West longitude. It is bounded on the West, North and East by the Irish, Deucalionian and German seas, or more properly the Atlantic Ocean; and on the South by England, from which it is separated by no natural boundary, if we except the Solway Frith, near Carlisle, on the West, and the mouth of the Tweed, at Berwick, on the East. In the time of the Romans, however, it extended much farther, being bounded by the wall raised by that warlike people between Newcastle and Carlisle; and, under the Norman Kings of England, it included Northumberland, Westmoreland and Cumberland.

1. *Divisions.*] Scotland was anciently divided into two parts, separated by the Frith of Forth. The northern division contains fifteen counties, and the southern eighteen: and these counties or shires are subdivided as in the following table.

Shires.

EDINBURGH.
HADDINGTON.
BERWICK.
ROXBOROUGH.
SELKIRK.
PEEBLES.
LANERK.
DUMFRIES.
WIGTOWN.
AIR.
DUMBARTON.

Chief Towns.

Edinburgh.
Dunbar and Haddington.
Berwick, Duns and Lauder.
Jedburgh, Hermitage, Roxborough.
Selkirk.
Peebles.
Glasgow, Hamilton, Lanerk.
Dumfries, Annand.
Wigtown.
Air, Balgenny, Irwin.
Dumbarton.

BUTE,

*Shires.**Chief Towns.*

BUTE, CATHNESS.	Rothsay.
RENFREW.	Renfrew.
STERLING.	Sterling.
LINLITHGOW.	Linlithgow.
PERTH.	Perth, Athol, Scone, Blair, Dunkeld.
KINCARDIN.	Bervy.
ABERDEEN.	{ Old Aberdeen, New Aberdeen, Frazerburgh, Peterhead.
INVERNESS.	Inverness, Inverlochy.
NAIRNE and CROMARTIE.	{ Nairne, Cromartie, Tayne, Tariat.
ARGYLE.	{ Inverary, Dunstaffnage, Kellonmer, Campbelltown.
FIFE.	{ St. Andrew, Couper, Burnt Island, Dumferlin, Dyfart, Anstruther.
FORFAR.	Montrose, Forfar.
BAMF.	Bamf.
KIRCUDBRIGHT.	Kircudbright.
SUTHERLAND.	Strathy, Dornock.
CLACMANAN and KENROSE.	{ Culros, Clacmanan.
ROSS.	Ros.
ELGIN.	Elgin.
ORKNEY.	Kirkwall, Skalloway.

In all thirty-three shires, which chuse thirty representatives to sit in the parliament of Great Britain: Bute and Cathness chusing alternately, as do Nairne and Cromartie, and Clacmanan and Kinross.

The royal boroughs which chuse representatives are

Edinburgh	-	-	-	-	I
Kirkwall, Wick, Dornoch, Dengwall and Tayne	-	-	-	-	I
Fortrose, Inverness, Nairne, Forres	-	-	-	-	I
Elgin, Cullein, Bamf, Inverary, Kintore	-	-	-	-	I
Aberdeen, Bervy, Montrose, Aberbrothick, Brechin	-	-	-	-	I
Forfar, Perth, Dundee, Cowper, St. Andrews	-	-	-	-	I
Crail, Kilrenny, Anstruther, East and West Pittenweem	-	-	-	-	I
Dyfart, Kirkaldy, Kinghorn, Burnt Island	-	-	-	-	I
Innerkerthin, Dumferlin, Queensferry, Culros, Sterling	-	-	-	-	I
Glasgow, Renfrew, Rutherglen, Dumbarton	-	-	-	-	I
Haddington, Dunbar, North Berwick, Lawder, Jedburgh	-	-	-	-	I
Selkirk, Peebles, Linlithgow, Lanerk	-	-	-	-	I
Dumfries, Sanquhar, Annan, Lochmaban, Kircudbright	-	-	-	-	I
Wigtown, New Galloway, Stranraer, Whitehorn	-	-	-	-	I
Aire, Irwin, Rothsay, Cambletown, Inverary	-	-	-	-	I

Some geographers divide Scotland into two parts, distinguished into Highlands and Lowlands, on account of the mountainous country in the North, and the flat tracts on the South. The dres

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of the Highlanders is peculiar to themselves, and very much resembles the military habit of the ancients: it consists chiefly of the bonnet, fillebeg and plaid.

2. *Climate, Soil and vegetable Productions.*] Scotland, though situated in so high a latitude that its longest day in summer in the more northern parts is more than eighteen hours, and its longest winter night of consequence equally long, is yet far more temperate than might at first be imagined. The warm breezes from the surrounding seas not only soften the natural keenness of the air, but also by keeping it in agitation, render it pure and salubrious, and prevent those epidemic distempers which prevail in other countries; however in the neighbourhood of some high mountains generally covered with snow, the air is keen and piercing for nearly nine months in the year.

The soil varies in different parts of the country. It is not in general so fertile as that of England, and in many places seems much better adapted for pasturage than agriculture; the latter however has of late been attended to, and so rapidly has the art of cultivation been diffused over the kingdom that the aspect of the country appears to be materially changed. In many spots over which the barren heath formerly spread its sable carpet, the most thriving plantations now rise to view; and in others, where scarce a blade of grass could vegetate, the corn begins to wave its yellow head.

The vegetable productions of the Lowlands are much the same as those of England, but they do not arrive so early at maturity. The Highlands still contain many extensive sterile tracts; and indeed the soil in many places seems only adapted to the propagation of firs, which thrive amazingly on the most rocky and barren mountains.

Scotland appears to have been once overrun with timber. The deepest morasses contain large logs of wood, and there still remains several extensive forests. Etrick wood in the south of Scotland is supposed to be the remains of the Sylva Caledonia, famous in antiquity for being the resort of wild boars; and there are some woods in the highlands which reach twenty or thirty miles in length, and four or five in breadth, and produce most excellent oak, but being a vast distance from water carriage it is not of much emolument to the proprietors.

3. *Animals.*] The animals of Scotland are pretty much the same with those of England. The Highlands are stocked with red-deer, roe-bucks, hares, rabbits, foxes, wild cats and badgers; and the hills in general are covered with black cattle and sheep. Plenty of game, as it is called, is likewise found here, particularly grouse and heathcock. The horses in Scotland are exceedingly small. Formerly their kings and nobility endeavoured, by importing a larger species of that useful animal, to improve the breed, but they were found, by repeated trials, to degenerate both in size and spirit.

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spirit. The Lowlanders at this time make use of a breed which came originally from England.

Two remarkable birds, called the capperkaily and the tarmacan, are inhabitants of the Highlands. The capperkaily is about the size of a turkey, and esteemed a great delicacy. The tarmacan is a species of pheasant, and feeds on the tender tops of the fir and pine branches, from which the flesh contracts a turpentine flavour, accounted very agreeable both to the palate and stomach.

The rivers and lakes in Scotland abound in salmon, trout, jack and eel; and the sea supplies them with the variety of salt-water fish. Of late years societies have been erected for the improvement of their fisheries, and they are at present brought to a degree of perfection that falls very little short of the Dutch. Their salmon in particular is of very great advantage to them, as they have it in their power to cure and send it much earlier to the Levant and southern markets than the English or Irish can, and consequently find a quicker sale for it.

4. *Minerals.*] Gold is one of the minerals of Scotland. Small solid pieces of that much desired metal are often found in brooks after a great torrent. At the nuptials of James V. with a daughter of France, covered dishes, filled with coins of Scotch gold, were presented to the guests by way of desert; and in the time of that monarch the mines of Crawford-moor were worked by Germans, under the direction of one Cornelius their chief; but the civil wars which happened in the reign of Mary Queen of Scots obliged these people to abandon their works, which have never since been resumed.

The lead mines in Scotland, of which there are several, produce great quantities of Silver. Some copper mines have been discovered near Edinburgh, and no country boasts of greater plenty of iron-ore both in mines and stones. The east, west and northern parts of the country produce exceeding good coals, of which large quantities are exported. In Lanerkshire or Clydesdale large pieces of lapis lazuli are sometimes dug up. Allum mines have lately been discovered in Bamffshire. The country abounds in flint, talc, sea shells, fuller's earth and potters clay; and in many parts are found variegated pebbles, chrystal and other transparent stones, which admit of a fine polish.

Mineral springs have also of late years been discovered.

5. *Face of the Country, Mountains, Rivers and Lakes.*] The present improving state of Scotland gives us to see cultivation, canals and various publick works; and the respectable names and employments of men of business or citizens in place of the desert wastes, and the feudal manners of the lordly chieftains in their lonely castles, with their poor but devoted clans about them, which so long deformed this country.

The principal mountains in Scotland are the Grampian Hills, the Pentland Hills, Lammer Muir, and the Cheviot or Teviot Hills.

Besides

Besides these, Scotland contains many detached mountains, some of which are very high, and of beautiful forms.

The chief rivers are the Forth, the Tay, the Spey, the Clyde and the Tweed; besides these there are many of less note, plentifully stocked with salmon, trout, and a variety of other fish.

Scotland abounds in lakes, by the inhabitants called lochs, the principal of which are the Loch Tay, the Loch Lomond and the Loch Du. They also frequently give the name of loch to an arm of the sea, of which Loch Fyn is one, and is sixty miles long and four broad. On the top of a hill near Lochness, accounted near two miles perpendicular, is a lake of fresh water, about sixty yards in length, and hitherto thought to be unfathomable; this lake never freezes, whereas the Lochanwyn, or green lake, about seventeen miles from it, is perpetually covered with ice.

6. *Manufactures and Commerce.*] The manufactures of Scotland are pretty much of the same kind with those of England, though not generally brought to the same perfection. At Carron, however, in Sterlingshire, they have a most extensive iron manufacture of both cast and wrought metal, and their linen manufacture has increased to a great degree; these, their mines and inexhaustible fisheries chiefly furnish the exports of this country.

The prodigious bounties and encouragements that have been granted of late years for the benefit of the trade and manufactures of Scotland, they have, by indefatigable pains and industry, turned to advantage; their shipping has consequently greatly increased, and excepting the East Indies they carry on an extensive commerce with every nation to which their southern neighbours trade,

7. *Curiosities.*] If we except their lakes and mountains the natural curiosities of Scotland are but few. Upon the top of a mountain called Skorna Lappick, in Rossshire, twenty miles distant from the sea, are found great numbers of oyster and other sea shells, together with a heap of white stones, and some as clear as crystal. The columnar rocks between the castle and harbour of Dunbar resemble the Giant's Causey in Ireland. In Fifeshire there are several caverns of extraordinary dimensions; and at Slains, in Aberdeenshire, is a petrifying cave.

The antiquities in Scotland are principally druidical, Pictish, Danish and Roman. Of the former there are many monuments and temples still discernible in the northern parts, and especially in the islands, but none of them equal to Stone-henge in Salisbury Plain. There is in Perthshire a barrow which seems to be a British erection: It resembles the hull of a ship with the keel uppermost: The people call it Ternay, which some imagine to be a contraction of terræ navis, the ship of earth. It seems to be very antique, and perhaps was erected to the memory of some British Prince, who acted as auxiliary to the Romans, for it lies near Auchterarden, not many miles distance from the great scene of Agricola's operations.

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A great variety of Roman antiquities are found in various parts of the country; but the most remarkable now remaining is the pretenture or wall originally marked out by Agricola, and finished by Antoninus Pius. This wall extends from Carron upon the Frith of Forth to Dunblaw, upon the Frith of Clyde, more than thirty-seven English miles in length; on the south-side of it ran a large well-paved military way, which never leaves the wall above one hundred and forty yards. We learn from the inscriptions on this wall, which are still extant, that the whole of the legion called *secunda Augusta*, and the *Vexillationes* of the twentieth and the sixth legions were employed in completing this pretenture. At the bottom of the Grampian Hills is a striking remain of Roman antiquity in great preservation, having no less than five rows of ditches and six ramparts on the south side; and of the four gates which lead into the area three of them are very distinct and plain, viz. the *prætoria*, *decumana* and *dextra*: The *prætorium* is the place where the general's tent stood, and this is generally thought to have been the camp occupied by Agricola before he fought the bloody battle, so well recorded by Tacitus, with the Caledonian King *Galgacus*, who was defeated. A very beautiful antiquity in this country was a temple on the banks of the Carron, in the form of the pantheon at Rome, or the Paul's dome in London. It was supposed to be built by Agricola, or some of his successors, to the god *Terminus*, as it stood near the Pretenture, which bounded the Roman empire in Britain to the north; but to the grief of antiquarians this monument of the Romans was demolished, for the purpose of mending a mill-pond. Near it are some artificial conical mounds of earth, which still retain the name of *Dunipace* or *Duni-pacis*, which may serve to evince that there was a kind of solemn compromise between the Romans and Caledonians, that the former should not extend their empire farther towards the north. Innumerable are the coins, urns, utensils and inscriptions, and other remains of that people, that have been found in different parts of Scotland, many of them at a great distance north of the Pretenture. Vestiges of Roman camps are also found in various parts of the country.

Danish camps and fortifications are very distinguishable by their square figures and difficult situations, in several northern counties of Scotland. Some houses of stupendous appearance still remain in Rosshire, but whether they are Danish, Pictish or Scottish is uncertain. Two columnal monuments of a very extraordinary construction, and generally ascribed to the Picts, are still standing; the one at *Abernethy* in Perthshire, the other at *Brechin* in Angus; each of them is hollow in the inside, and externally furnished with a stair-case. At a place called *Aberlemno*, near Brechin, are four or five ancient obelisks erected in commemoration of the victories of the Scotch over the Danes, each of which are adorned with bas-reliefs of men on horseback, and many emblematical

matical figures and hieroglyphics unintelligible at this distance of time. But the most remarkable one of this kind is near the town of Fortrose in Murray; it consists of one large stone, and rises about twenty-three feet in height from the ground, and is said to sink no less than twelve or fifteen below the surface, so that the whole height is at least thirty-five feet, and its breadth near five. On what occasion it was erected is unknown.

The parallel roads of Glen Roy Lochabar form a curiosity of the artificial kind, which has hardly any thing like it in the world. The glen itself is extremely narrow, and the hills on each side very high, but not remarkably rocky. On the declivity of the hills on both sides of the glen are three spacious roads, levelled out of the earth, one above another, and directly opposite on each side. The uppermost road is about fifty yards above the centre one, the lowest more than one hundred beneath it. They are about seven miles long. They are carried along the sides of the glen with the utmost regularity. Other small glens fall into Glen Roy: The parallel roads surround all these smaller ones, but where Glen Roy ends in the open country there are not the smallest vestiges to be seen. Where deep burns or gullies of water cross these roads they avoid both the descent and ascent in a curious manner, so that on the side where the roads enter the hollows they rather ascend along the slope, and descend on the opposite side, until they come to the level, without the traveller being sensible either of the ascent or descent, where rocks fall in the way; and there are some small ones in the course of these paths, the roads seem abruptly broken, there is no vestige of any causeway or projected path for passing them. The road begins on each side of the rock, keeping the regular line as before. These roads are inaccessible at the east-end, but open at the west; but for what purpose they were made it is not easy to determine. Some have imagined that they are the works of the druids, but there are none of their buildings or circles of stones. The country people are persuaded that they were designed for the chase, but that these terraces were made after the spots were cleared in lines from the wood, to tempt their game into within reach of the bowmen concealed in the woods above and below. Ridings for the sportsmen are still common in all the great forests of France and other countries on the continent, that the hunters may either pursue their game without being interrupted by trees and bushes, or shoot at it in its passage.

We may reckon the military roads among the foremost curiosities of modern art in Scotland. These, by rendering the Highlands accessible, have greatly contributed to their present improvement, and were owing to the industry of the soldiery. They were begun in 1723, under the directions of General Wade, who forced his way through rocks before supposed to have been unquarable. Many of them hang over the capacious lakes of the country,

country, and formerly afforded no other road to the natives than the paths of sheep or goats, where even the Highlander crawled with difficulty, and kept himself from tumbling into the far adjacent water by clinging to the plants and bushes of the rock. Many of these rocks were too hard to yield to the pick-axe, and the miner was obliged to have recourse to gunpowder; and often when the place was inaccessible in any other way, he was obliged to begin his labours suspended from above by ropes, on the face of the horrible precipice. The bogs and moors had also their difficulties to be overcome, but all were at length constrained to yield to the perseverance of the English troops.

In some parts the soldiers, in imitation of the Romans, left engraven on the rocks the name of the regiment to which each party belonged who were employed in these works; and it has been remarked they were not less worthy of being immortalized than the vexillatio's of the Roman legions, civilization being the consequence of the labour of both.

8. *Schools and learned Men.*] Scotland contains four universities, which are according to seniority, St. Andrews, Glasgow, Aberdeen and Edinburgh; besides these, public schools are erected in every parish. In these illustrious seminaries, literature is divested of the ostentation of rich endowments, and the professors are men eminent in their respective departments. This country has produced such an illustrious train of learned men, that to particularise them would be to give a literary history of Europe for upwards of fourteen hundred years. The works of Ossian seem to shew that poetry was no stranger to this climate in very remote ages. Patrick, the celebrated apostle of Ireland, who lived in the fifth century, was a native of this kingdom, which became for some time a refuge for the learned, especially the little island of Jona called St. Columb Kill. The writings of Adamnanus and other authors who lived before and at the time of the conquest of England, which are still extant, are specimens of their literature at that period. Charlemagne held a correspondence by letters with the Kings of Scotland, and employed Scotchmen in planning, settling and ruling his favourite universities, and other seminaries of learning in France, Germany and Italy. The pure Latin stile of Buchanan is a sufficient proof that the study of languages was cultivated in his time; but the great destruction of the Scottish monuments of learning and antiquities have rendered their early annals very lame, and too often fabulous.

The discovery of logarithms by Napier of Marchieston, both in point of ingenuity and utility, may justly vie with any other invention of more modern times; and, ever since that æra, mathematical studies have been prosecuted in Scotland, and indeed in Europe in general, with facility and success. The names also of Keil, Gregory, Maclaurin, Simpson, Pitcairn, Arbuthnot, and many others, hold an eminent place among the literati of Europe; and Scotland

produces at this day, in the several branches of literature and science, works that are hardly exceeded in any other country. But the modern writers of these countries are naturally included under the common name of English, from the language they use.

9. *History.*] Scotland was anciently called Caledonia, and the inhabitants Caledones, who were of Celtic original. In the fourth century they were distinguished into Scots and Picts. In 85 Agricola the Roman general subdued this part of the island, but did not retain more of the conquest than that part which is south of the Forth and Clyde. In 121 Adrian relinquished more, building a wall from the Solway Firth to the river Tyne. In 144 the Romans again extended their boundaries as far as the wall of Agricola; but Severus, though he conquered the whole country in 208, thought proper to adhere to the boundary of Adrian.

Upon the Romans quitting this island in 410 the Scots regained the possession of all that is now called Scotland, and made excursions very far southwards, though without retaining their conquests. About 839 the Picts are said to have been entirely reduced by Kenith II. the first sole King of all Scotland. In 1296 Edward I. King of England, conquered all this country, and the English were not finally expelled till the year 1314. In 1602 James VI. King of Scotland, succeeded to the crown of England, on the death of Queen Elizabeth; and in 1707 the union between the two crowns was completed.

The isles of Scotland chiefly form three clusters: on the west lie the Hebrides or Western Isles; on the north the Orkneys or Orkades; and still farther north the islands of Shetland, where the hardy inhabitants derive much of their sustenance from climbing the stupendous rocks after birds and their nests, which multiply in astonishing abundance. In Summer they can see to read at midnight; and their seas at that season are covered with the fishing vessels of different nations, who resort thither to catch herrings; but in their tedious Winter they are deprived of every communication with other countries, and not a single ship is seen on their coasts.

SECTION IV.

IRELAND.

Ireland is situated between six and ten degrees of West longitude, and between fifty-one and fifty-five degrees of North latitude. It is bounded on the East by George's Channel, or the Irish Sea, which divides it from Great Britain; its other shores are washed by the Atlantic. The name of this island is probably derived from a Phœnician

a Phœnician or Gaelic term, signifying the remotest habitation westward.

1. *Divisions.*] Ireland is divided into four provinces: on the North lies Ulster, on the East Leinster, on the South Munster, and the West Connaught.

LEINSTER Province contains twelve Counties.

Counties.

Chief Towns.

LOUTH.	Drogheda, Dundalk, Carlingford, Ardee, Dunleer
EAST MEATH.	Trim, Kells, Athboy, Navan, Duleek, Ratoath, Ardbraccan.
WEST MEATH.	Mullingar, Athlone, Kilbeggan, Kinnegad, Fore.
LONGFORD.	Longford, Granard, Laneborough, Johnstown.
DUBLIN.	Dublin, Swords, Newcastle, Balrudeary, Finglas, Glasnevin.
KILDARE.	Naas, Athy, Kildare, Castledermot, Kilcullen, Rathangan, Kilcock, Monasterevin.
KING'S CO.	Philipstown, Bir, Tullamore, Banagher, Ballyboy, Geashill.
QUEEN'S CO.	Maryborough, Mountmellick, Portarlinton, Ballynekill, Mountrath, Stradbally, Ballyroan, Abbyeix, Borris in Offory.
WICKLOW.	Wicklow, Arklow, Cary's Fort, Rathdrum, Bray, Blessington, Dunlavan, Baltinglass, Carnew.
CARLOW.	Carlow, Old Leighlin, Leighlin-bridge, Tullogh, Hacketstown, Bagnalstown, Clonegall.
WEXFORD.	Wexford, Enniscorthy, New Ross, Fethard, Gorey, Bannow, Clonmines, Taghmon, Duncannon, Ferns.
KILKENNY.	Kilkenny, St. Canice, Thomastown, Callan, Gowran, Knocktopher, Innistiege, Castlecomber, Ballyragget.

ULSTER contains nine Counties.

DONEGAL.	Donnegal, Ballyshannon, Johnstown, Killybegs, Lifford, Letterkenny, Raphoe, Rathmullen, Rathmelton, Buncranagh.
LONDONDERRY.	Londonderry, Colerain, Newtownlimavady, Magherafelt, Ballinderry.
ANTRIM.	Carrickfergus, Belfast, Lisburn, Antrim, Randalstown, Ballymenagh, Ballycastle Connor, Larne, Ballymony.
TYRONE.	Omagh, Dungannon, Augher, Strabane, Stewardstown, Clogher.
FERMANAGH.	Enniskillen, Newtownbutler, Lisneskea, Clabby, Maguirebridge.
ARMAGH.	Armagh, Charlemont, Lurgan, Portadown, Tandragee, Loughgall, Legacarry, or Rich-hill.
DOWN.	Downpatrick, Newry, Dromore, Killileagh, Bangor, Newtown, Hillsborough, Magherelin,

Moir, Donaghadee, Rathfryland, Warrenstown.

MONAGHAN. Monaghan, Glaslough, Clownish, Carrickmacross, Castleblaney.

CAVAN. Cavan, Kilmore, Belturbet, Cootchill, Killyshandra.

MUNSTER contains six Counties.

CORK. Cork, Bandonbridge, Cloyne, Mallow, Ross, Baltimore, Youghall, Kinsale, Cloughnakilty, Charleville, Castlemartyr, Middleton, Rathcormuck, Donerail, Bantry, Skibbereen, Dunmanway, Macrump, Buttevant, Kanturk, Castletyons, Carryglass, Killworth, Mitchestown, Fermoy, Inniskeen, Innishannon, Timoleague, Newmarket, Ballyclough, Annagh, Douglas.

WATERFORD. Waterford, Dungarvan, Lismore, Tallagh, Passage, Caperquin.

TIPPERARY. Clonmel, Cashel, Tipperary, Carrick, Thurles, Nenagh, Feathard, Burrakeen, Roscrea, Clogheen, Silvermines, Cullen, Cahir.

LIMERICK. Limerick, Kilmallock, Askeaton, Rathkeal, Newcastle, Hospital, Bruff, Kilfinan.

KERRY. Tralee, Dingle, Icoch, Ardfert, Aghadoe, Kilarney, Castle-island, Lixnaw, Listowell.

CLARE. Ennis, Killaloe, Bryansbridge, Kilfenora, Six-mile-bridge, Newmarket, Corofin.

CONNAGHT includes five Counties.

GALWAY. Galway, Loughrea, Athenry, Tuam, Clonfert, Eyrecourt, Gort.

ROSCOMMON. Roscommon, Abbyboyle, Tulsk, Elphin, Ballinacloe, Castlereagh, Athlone.

MAYO. Castlebar, Ballinrobe, Foxford, Killala, Newport, Minola, Ballina.

SLIGO. Sligo, Coloony, Achonry.

LEITRIM. Leitrim, James's-town, Carrick.

In Ireland the King governs by deputy, and his Lord Lieutenant or Viceroy is competent to the execution of laws; or, in his absence, or on his decease, the Lords Justices are the supreme governors. The Laws are enacted by authority of the two Irish houses of Parliament, and sent over to Great Britain, where the King resides, to receive his assent.

In Ireland there are

	Members.
32 Counties, which send to parliament	64
99 Boroughs	198
8 Cities, 9 towns, 1 Manor and 1 University, each 2	38
Total	300

2 Climate,

2. *Climate, Soil and vegetable Productions.*] Ireland is more temperate than even England as to heat and cold, but its air is more humid, from the adjoining Atlantic, and it is still more subject to clouds and rain.

The soil is various; in some places it is so rich as to want no manure, and in a few places so barren that husbandry can hardly render it fertile.

In this long oppressed country, agriculture has been much neglected, but happily things are now taking a different turn. Where the lands are not naturally fertile the inhabitants take care to manure them with dung, ashes, mud or lime, in order to enrich the soil. By these and various other improvements lately made in agriculture the lands in Ireland produce much larger quantities of corn, flax, artificial grasses, culinary vegetables, &c. than formerly. This happy change is in a great measure owing to the Dublin Society, established for the improvement of various arts and manufactures, among which husbandry engages a very considerable share of their attention. The premiums offered by this society have introduced the cultivation of clover, trefoil, the saint-foin, lucern, rye-grass, and various other vegetables for the food of cattle. Many unprofitable bogs have also been drained and rendered excellent land.

There are at present few forests in Ireland, and those confined chiefly to the provinces of Leinster and Ulster. These produce excellent timber, particularly oak. Formerly the whole country was covered with woods, but since the reformation they have been cut down in so extraordinary a manner that the inhabitants are now obliged to import large quantities of timber for their buildings.

3. *Mineral Productions.*] It is principally in this century that the mines of Ireland have been discovered, though there appear to be some vestiges of Danish works of this sort near Clontarf, on the edge of Dublin bay. In the county of Antrim there is one which consists of a mixture of silver and lead, every thirty pounds of lead-ore producing about a pound of silver; but another mine of the same kind in Connaught does not produce half the quantity of silver, while one at Wicklow is still richer than that in the county of Antrim. About twelve miles from Limerick, in the county of Tipperary, two mines, one of copper and the other of lead, have been discovered. Iron mines are dispersed all over the kingdom. Here are also quarries of marble, freestone and fine slate. Coals are also dug in Ulster and Connaught, and at Kilkenny in Leinster there is a peculiar species, something resembling the canal coal of Lancaster, very hard, of a bright black, burns freely, and emits little or no smoke.

There are very few mineral waters in Ireland. The principal spring of this kind is situated on the banks of the Liffey, at the village of Leixlip, seven miles from Dublin. There are other waters all over the kingdom to which credulity assigns miraculous powers,

powers, but as these are only imaginary they have greatly lost their credit, and will probably at length be entirely disregarded.

4. *Animals.*] There is great reason to believe that the moose-deer was formerly an inhabitant of this country, from its horns being sometimes dug up; one pair of these has measured eleven feet from the extreme tips of the horns. Another great curiosity in this island are the *gof-hawks* and *ger-falcons*. Ireland was formerly overrun with wolves, but many of the woods which harboured them having been destroyed, the wolf-dogs have almost or altogether extirpated them. The wolf-dogs are peculiar to this country; they are much larger than mastiffs, and shaped something like greyhounds, but much grosser, and very gentle and governable. The other animals are much the same with those of England. In their amazing herds of horned cattle formerly consisted the chief wealth of the inhabitants, and at present they form one great article of their exports. Their flocks of sheep are also prodigiously large, and in many places where the pasture is fine, and the climate exceeding temperate, they are shorn twice in a year, to the great emolument of their owners. Hogs are likewise very numerous, as are geese, turkeys and fowls of various kinds. Rabbits are in much greater plenty than in England, and moles and venomous creatures have not yet found their way here. The fish on the coasts of Ireland are in greater plenty than on those of England, and at the same time frequently better and larger in their kind.

5. *Face of the Country, Mountains, Rivers and Lakes.*] Perhaps no country in the world has improved so much in a political capacity during the present century, if we except Russia, as Ireland has done. The unhappy quarrels that took place on account of different national and professional distinctions, and that for ages desolated this wretched country, a detail of which would alike blacken the Irish and the English of those rueful times. These unhappy differences have in a great measure subsided, and the remembrance of them, together with the unbecoming distinctions that produced them, appear by degrees to be passing away.

Ireland at present exhibits an improving state of agriculture, encreasing manufactures, and commerce extending to every quarter of the globe. Canals are now opened in different parts of the country, and the roads are pretty good. The little vehicles however which totter along the roads, and on which the inland trade as yet disadvantageously labours, may shew the evil of being too much attached to the unimproved manners of our forefathers, even in the common affairs of life. These however are not the only carriages in Ireland. Though the infant commerce of this country cannot exhibit numerous waggons as in England, the wealthy and the luxurious have their elegancies and superfluities equal to the other nations of Europe.

There are several lofty chains as well as single mountains in this kingdom; and they have three words in the Irish that express the different

different degrees of their elevation, viz. knock, slieu and bien. Among the last or highest sort are the mountains of Carlingsford, the Curlious which separate the counties of Sligo and Roscommon, those in the county of Donegal about Lough Swilly, the Manger-ton mountains in the county of Kerry, Croagh Patrick in the county of Mayo, the Gaulty mountains in the county of Tipperary, Slieu-bloom running through part of the King and Queen's counties and part of the county of Tipperary, the Brandon mountains in the county of Kerry, to the east of Smerwick Bay, Slieu-galen in the county of Tyrone, the mountains of Wicklow, particularly the Sugar-loaf Hill; the mountains of Mourne and Iveah in the county of Down are esteemed among the highest in the kingdom, particularly that called Slieu Denard, which is thought to be one thousand and fifty-six yards in perpendicular height, and many others, several of which contain veins of iron, lead, copper, coals, quarries of stone, slate, marble, &c.

The principal rivers of Ireland are the Shannon, Barrow, Nore, Suir, Bann, Lee, Liffey and Boyne.

Ireland abounds with lakes, or loughs as they are called in this country, of which Lough Neagh, near twenty miles in length, and from ten to twelve in breadth, is most remarkable for its petrifying qualities. The Lake of Killarney is celebrated for its echoes and enchanting prospects; and Lough Earne, in the county of Fermanagh, almost surrounded by lofty eminences or mountains, abounds as well as the others with a variety of fish. It is diversified with upwards of three hundred isles, most of them well wooded, inhabited, and covered with cattle. There are many other loughs or lakes in this country, and here, as well as in Scotland, they give the name of lough to an inlet or arm of the sea.

6. *Commerce and Manufactures.*] The articles of manufacture and commerce in Ireland are much the same with those of England; however, in the comparison between the two in this respect, we may perhaps fitly enough consider Ireland as an infant rapidly shooting out, and England as a youth gaining slow but steady acquisitions of strength.

The linen manufacture is the staple trade of Ireland, the increase whereof within the present century is really astonishing. The only market for vending the whole produce was comprehended in a few rooms in two or three inns in and near Church-street and Pill-lane in Dublin, until the year 1728, when the linen-hall in that city was built and opened by the trustees of the linen manufacture, (to whose continued care and attention much gratitude is due by the nation) since which they have from time to time made many and large additions, whereby it now contains about four hundred rooms, all fully occupied, many of them perhaps two or three times each market, there being three annually. The yarn-hall adjoining is also an extensive building, wherein a great deal of business is transacted both for home manufacture and exportation. Yet all this doth not describe

describe one-half of the increase, for from Belfast only there has been for many years past several hundred thousand pounds worth yearly exported to London and sundry other ports in England and foreign parts; and lately a spacious linen-hall has been built in that town, at the expense of the inhabitants, containing near three hundred rooms, in which there is a market held one week before each in Dublin, so that the exports from thence of linens at present falls little short of those from Dublin; but if we add the exports from Newry, and linen-yarn from Londonderry and other ports in Ulster, they exceed those from Dublin in that line by near half a million sterling yearly. The cotton manufacture, though but a very few years since it took root in this kingdom, has made a more rapid progress in the short time than even the linen trade, there being divers water-mills for roving and spinning erected, many hundred looms at work, and several stamp-yards in sundry parts of the kingdom, all for completing the various branches of this useful manufacture. The whole amount of exports at this time of linen-cloth is about two millions sterling annually, and that of linen-yarn five hundred thousand pounds.

The other exports from Ireland are, live cattle, beef, pork, bacon, butter, cheese, tallow, raw hides, tanned leather, calf skins, dried soap, candles, ox and cow horns, herrings, salmon, oats and oat-meal, wheat, flour, lead, copper-ore, &c. broad cloths, frizes, fine stuffs, ratteens, camblets, fine tabbinets and poplins, (which last exceed those of any other country) wool, bay yarn, with many other things too tedious to enumerate in a work of this kind.

7. *Curiosities.*] Were the beautiful lakes, waterfalls and glyns in Ireland less numerous they might readily be admitted as rarities or natural curiosities

Of the subterraneous caverns in this country those near Kilkenny are the most remarkable, being hardly less curious than the celebrated ones of Antiparos in the Archipelago. The appearance of the caverns within impress upon the spectators the idea of grand gothic structures, gaily diversified with innumerable chryselline and white petrifications, pendent from the roof like icicles, or encrusted on the sides and floor in the stile of rustic ornament; people have gone above a quarter of a mile in these caverns. The passages into some of the caverns are so very low that the curious have been obliged to creep through them; in these they have proceeded until they have heard the noise of a subterraneous river, but none have ventured farther.

The Giants Causeway in the county of Antrim has been accounted the greatest natural curiosity in Ireland, being almost the only one, and at least the most remarkable one of its kind in the known world. The name of it may naturally convey to us the idea of some stupendous work of art; and as such it seems to have been considered in the days of ignorance when the name was first applied; modern philosophy however looks on it with a different eye. To conceive

conceive a proper idea of this unparalleled curiosity we may imagine an approach to it from the sea; its first appearance is that of a bold rocky shore, with extensive ranges of shelving on which people may walk. The rocks instead of being disposed in laminæ or strata, form basaltæ or angular columns. The columns generally are pentagonal, or have five sides, and are so closely attached to each other, that though perfectly distinct from top to bottom scarce any thing can be introduced between them. This extraordinary disposition of the rocks continues to the waters edge and under the sea, it also obtains in a small degree on the opposite shore of Scotland.

The chrystals of salts in the works of creation as well as under a chymical process, assume certain regular and determinate forms, as cubes, various sorts of pyramids, parallelopipeds, &c.; and we might imagine that this celebrated promontory, made up of these innumerable massive columns of stone owing their origin to some similar operation in nature, were not at all more wonderful than the chrystallization of salts, except as their stupendous size impresses such little beings as we are with amazement; but the cause is still more curious in the little than the great. The columns themselves are not each of one solid stone in an upright position, but composed of several short lengths exactly joined, not with flat surfaces as in works of art, but what is most extraordinary, they are articulated into each other as a ball in a socket, the one end of the joint having a cavity into which the convex end of the opposite is exactly fitted; this is not visible but by disjoining the two stones. The depth of the concavity or convexity is generally from three to four inches; and what is still farther remarkable of the joint, the convexity and the corresponding concavity is not conformed to the external angular figure of the column, but exactly round, and as large as the size of the column will admit. It is still further remarkable that the articulations of these joints are frequently inverted. In some the concavity is upwards in others the reverse.

The latest and most philosophic conclusions on the formation of this natural curiosity appear to be; that the whole body of the rocks was once in a state of fluidity, being no other than the lava of a burning mountain; that the prodigious mass of melted stone cracked in its cooling into the forms we now see it in (and in some of the joints the stone is not cracked quite through but solid in the middle) that it may since have been deranged and broken by earthquakes; that these have swallowed up the volcano itself, and that the waters of the neighbouring ocean now roll over the place where it once stood.

The Irish nation appears to be of greater antiquity than any other in Europe. It has in common with other countries its Druidical remains, as circles of stones, cairns, tumuli in which urns are commonly found, cromliachs, &c. and it appears, 'till this day there remains with their language a remarkable vestige of their manners or sacrifices; they kindle fires on high places at midsummer eve, though

though christianity has long since supplanted the worship of the sun.

It is generally known, that from the remote ages of antiquity the children of men have migrated from the East to these parts of the world; and it has been thought by some that colonies of that very ancient people the Scythians, and with more appearance of probability that the Phœnicians, or their descendants the Carthaginians, found their way to Spain along the Mediterranean, and from thence to this island, at a very early period, under the name of Milesians; moreover, that the Phœnicians, who were a maritime people, traded to this country. The tumuli, or monumental heaps in Ireland, and the name of Scotia first applied to this country, have been considered as derived from the Scythians*; and with a far more substantial appearance of truth, the very curious antiquities of Ireland have been considered as remains of the Phœnicians, and the arts they introduced: Of these the most incontestible are the various metal instruments, especially the brazen swords, which are of the same metal and construction of those lately found upon the plains of Cannæ, with which the Carthaginians fought. There has been a striking agreement also discovered between the Irish and Punic languages.

The most noted antiquities of Ireland are the Pharos or round columnar towers: the learned however are not agreed about the particular use to which these edifices were applied; some say they were places of penance, others that they were belfries, the very name of them in Irish Cloghahd, importing a steeple with a bell. But the prevailing opinion seems to have been, that they were anchorite pillars such as Simon Stylites and his followers, with uncommon austerity and perseverance, to the amazement of the gazing multitude, used to stand upon motionless like statues, and as it were removed from the earth and its low cares to meditate only upon heavenly things. Again it has been remarked, that over great part of the East they have tall round steeples called Minarets, with balconies at top, whence a person calls the people to publick worship at stated hours; and it has been supposed, as the Irish had their arts from Phœnicia, that from thence also came the model of these towers, which served, as the Minarets of the East do at present, till bells came into use.

At the Hill of Tarah, about eighteen miles north-west from Dublin, three still remain. Vestiges of the circular forts in which the several chiefs used to pitch their tents, or erect other temporary sheds on occasion of the triennial conventions held there, when the monarch,

* Others seem to have concluded, that the Irish were originally colonies of Britons driven out from their country by the Belgæ, who, 350 years before the Christian era, crossed the channel from Gaul and seized the whole Southern coast from Kent to Devonshire; and that hence, not from the Scythians, they received their ancient name of Scuites or Scots, which signifies the wanderers or refugees.

monarch, provincial kings and subordinate toparchs, solemnly assembled to adjust rights, enact laws and promulge them. This ancient nation, older than imperial Rome, if we may believe Orpheus, who expressly tells us that the Argonauts failed near the island Ierne; as it never felt the sway of that empire; so it scarcely exhibits any Roman antiquities. Yet it appears that ambitious people were acquainted with this island; for Tacitus says its ports and harbours were better known by trade and commerce than those of Britain. When the ambassador of Henry V. claimed precedence at the Council of Constance, he founded his title upon his master being Lord of Ireland, a state of undisputed antiquity. If the Danes at the time of their expulsion left any vestige of their former power in this island, either from the hatred of the Irish to their memory, or some other cause, they seem generally at this day to be demolished or extinct.

8. *Learning and Schools.*] Greece and Egypt in very remote antiquity were seminaries of learning to the rest of the world; and Ireland in latter days seems to have answered the same description to the other nations of Europe. When the ravages of the Goths and Vandals had desolated the improvements of Europe, and reached also to a considerable extent on the African continent; and when monkish superstition, still more baneful to science, had completed what the Goths begun, learning appears to have flourished in Ireland. Spencer says it is certain that Ireland had the use of letters very anciently, and long before England; he thought they were derived from the Phœnicians. Bede speaks of Ireland as the great mart of literature to which they resorted from all parts of Europe. He relates that Oswald, the Saxon king, applied to Ireland for learned men to instruct his people in the principles of Christianity. Camden says it abounded with men of splendid genius in the ages when literature was rejected every where else; according to him the abbies Luxieu in Burgundy, Roby in Italy, Witzburg in Frankland, St. Gall in Switzerland, Malmesbury and Lindisfern in England, and Jona or Hy in Scotland, were founded by Irish monks. The younger Scaliger says at the time of Charlemagne, and two hundred years before, almost all the learned were of Ireland. The first professors in the university of Paris were from this island; and it is said that Alfred brought professors to his newly-founded college of Oxford from this country. At this day, the patron saints, as they are called, of several nations on the continent are acknowledged to be Irish; hence we may see how Ireland obtained the name of the Island of Saints. Armagh in old times is said to have had several thousands of students at once, and here were other seats of learning equally famous. In fact, when we read of the ancient literature of Scotland, we must understand it as spoken of Ireland under its ancient name of Scotia, or the improvements of Scotland immediately derived from hence. Ireland retained the name of Scotia till so late as the fifteenth century, with the addition of Major

Major or Vetus to distinguish it from Caledonia or Albania, that is, the present Scotland, which in the eleventh century began to be called Scotia Minor, or Nova. The ancient Scotch writers of the greatest repute are so far from denying their Irish extraction, that they seem to glory it; and King James I. in one of his speeches, boasts of the Scottish dynasty being derived from that of Ireland.

The college of Dublin is the only university in Ireland. Several free schools have been established in this kingdom; besides these there are numerous academies or schools where literature and sciences are regularly taught.

It is surprizingly strange, says Rapin, who makes the names Scots and Irish synonymous, that the conversion of the English should be ascribed to Austin (a missionary of Rome) rather than to Aidin, to Finian, to Colman, to Ceddo, to Diumna, to Furseus, and other Irish or Scots monks. Among the literati also and reputed saints of Ireland we may reckon the names of Brigid, Brendan, Columb-cill, Columban, Gall, Fiacre, Virgilius, Kilian, Rumenoldus, Dymna, Fuscus, Malachy, and innumerable others. Virgilius was bishop of Saltzburg, a native of this country, and survived the eighth century, and ventured to incur the displeasure of the Pope, by opposing philosophy to the superstition of the times. If Virgil, says the Roman Pontiff, maintains that there is another world, another sun, another moon, and that this earth is round, so that there is another sky opposite to our sky, and other men with their feet opposite to our feet, anathema esto.

The more modern authors in Ireland from their language are with the other writers of these islands naturally included under the common title of English literati. Some of them have been so eminent for wit, genius, learning or science, that to mention their names only may inform many what works this country has latterly produced. Among these we may reckon the names of Usher, Boyle, Berkeley, Swift, Leland, Parnell, Boyce, the Lords Moleworth, Orrery and Clare, Sir Hans Sloan, Cunningham, Goldsmith, &c.

History.] The first inhabitants of Ireland were of Celtic original. Their history is very ancient, but much obscured by fiction or romance. In 795 the Danes seized a part of it, and were never compleatly subdued 'till the English took possession of the whole. Before this period the island had been divided into a number of petty sovereignties, and the country was harrassed by the contentions of the chiefs, as well as by the frequent and bloody wars with the Danes. Such was the situation of this kingdom when Henry II. of England first conceived the design of reducing it under his own dominion. It has been supposed he was provoked at the Irish princes for giving assistance to the French. It was affirmed by his flatterers that the Irish had originally possessed themselves of their country by permission of Gurguntius, a British king; and that, as descendants of the Britons, they were the natural and rightful subjects

P. VI.

jects of the English monarch. It was also suggested that the renowned king Arthur, Egfred the Northumbrian prince, and Edgar one of the Saxon kings of England, had all led their armies into Ireland, and there made valuable acquisitions, which their successor was in honour bound to recover and maintain. The king took a more effectual method of ensuring his reputation. He applied to the Pope, represented that the inhabitants of Ireland were sunk into the most wretched state of corruption, both with regard to morals and religion; that Henry, zealous for the honour and enlargement of God's kingdom, had conceived the pious design of erecting it in this unhappy country; was ready to devote himself and all his powers to this meritorious service; implored the benediction of the pontiff; and requested his permission and authority to enter Ireland, to reduce the disobedient and corrupt, to eradicate all sin and wickedness; to instruct the ignorant, and spread the blessed influence of the Gospel in all its purity and perfection; promising at the same time to pay a yearly tribute to St. Peter from the land thus to be reduced to his obedience, and to the Holy See. Adrian, the reigning pope, rejoiced at this application, which tended so much to the advancement of his own power. A bull was therefore immediately formed, conformable to the most sanguine wishes of Henry, which was sent to England without delay, together with a ring, the token of his investiture as rightful sovereign of Ireland. But whatever inclination the king of England or the Pope might at this time (A. D. 1156) have for the subjection of Ireland, the situation of the English affairs obliged Henry to defer it for some time.

In the mean time intestine broils harrassed this country; and among other revolutions, Dermot king of Leinster was deposed as a man utterly unworthy of his station, and another of his family was raised to the throne. The deposed prince sought the protection of the English; at first he was joined by private adventurers, yet with the countenance of Henry II. these first made settlements in this country in 1169, and in 1172 the king arrived himself, and in his treaty with Roderick, who was considered as monarch of Ireland, the whole island was submitted to him. The successes of Robert Bruce, king of Scotland, raised great commotions among the Irish, who were tempted to transfer their allegiance from the kings of England to those of Scotland: In 1315 he expelled the English out of almost all the places they held in this island, and was proclaimed king of Ireland. But the Scots were expelled in 1318, and the Irish submitted to Edward II. They appear to have remained quiet during the subsequent part of this reign; but in that of Edward III. they once more revolted. This monarch, however, having subdued the kingdom, treated the nation with such lenity, as entirely gained their affections. Till the reign of Henry VIII. the kings of England only assumed the appellation of Lords of Ireland; he took the title of King of Ireland, which his successors have continued ever since.

10. *Man and Jersey Isles.*] The Isle of Man is centrally situated between England, Scotland and Ireland. Its length from north to south is about thirty miles; its breadth from eight to fifteen; and the latitude of the middle of the island 54 deg. 16 min. north.

The air is mild, and the articles of its produce the same with the lands that surround it. In this island the horses are very small. There are no mines in this island, though it is said to abound with lead, iron and copper; and also with quarries, slates and stone. It contains several harbours, particularly that of Douglas, the capital town of trade, which has a mote extending into the sea; and Ramsey bay, where ships may ride safely from all winds except those at north-west. Its curiosities consist chiefly of Runic sepulchral inscriptions, which are sometimes dug up, together with ancient monuments of brass, daggers and other weapons, partly of brass and partly of pure gold.

History frequently mentions the kings of Man, who for some ages were masters of the surrounding seas; 'till in 1263, Alexander II. king of Scotland, subdued the island, from which time it continued tributary to that crown 'till it was reduced by Edward I. of England. Edward III. bestowed it on his favourite, the Earl of Salisbury. Henry IV. gave it first to the Northumberland family, and then to Sir John Stanley, whose posterity, the Earls of Derby, enjoyed it, 'till by failure of heirs male, it devolved upon the Duke of Athol, who married the sister of the last Lord Derby.

For many years this place swarmed with smugglers, outlaws, debtors, &c. where they lived secure from the reach of the laws. The government having taken this into consideration, in the beginning of the year 1764 a treaty was set on foot for the purchase of the island by the British crown, which in 1765 was concluded, in consideration of the sum of 70,000*l.* being paid to the proprietor. In consequence of this purchase, the king has now the same rights, powers and prerogatives as the former owners enjoyed. But, though the form of its government is altered, the Duke still retains his territorial property in the island. Their fisheries supply the principal part of their exports.

The islands of Jersey, Guernsey, Alderney and Sark are all situated in the English channel. They lie in a cluster in Mount St. Michael's bay, between Cape La Hague in Normandy, and Cape Frebelle in Brittany.

Jersey and Guernsey are each about twelve miles in length, and have governors, which are appointed by the kings of England. Alderney and Sark are dependent on the two former. They all originally belonged to the Normans; and Jersey is famous for affording protection to Charles II. during his exile.

The islands are all exceedingly healthy, particularly Jersey. The valleys are fruitful, and contain plenty of sheep and cattle; but husbandry is much neglected by the inhabitants, who employ themselves chiefly in cultivating their orchards, and making cider, with which both

both these islands abound; they are likewise very intent upon the improvement of commerce. At Jersey there is a manufacture of stockings, which, together with caps, form the staple commodity of that place; but a considerable trade in fish is carried on between these islands and Newfoundland, and they dispose of their cargoes in the Mediterranean. The inhabitants speak a very bad French, with an intermixture of English words.

SECTION V.

DENMARK, NORWAY, &c.

Lapland forms the northern coast of Europe, and the neighbouring powers of Denmark, Sweden and Russia claim different divisions of it; but from such a land of ice, and of snows, mountains and morasses, we can hardly expect them to derive much profit. The skins of squirrels, foxes, &c. compose the trifling tribute the Laplanders pay, and the medium of what little traffic they carry on.

Of the Kingdoms of DENMARK, NORWAY, &c.

These two kingdoms, which were united in the year 1376 by the marriage of Aquin, king of Norway, with Margaret, daughter and heiress of Waldemar, king of Denmark, were formerly part of Scandinavia, a large country, comprehending Denmark, Norway and Sweden.

Denmark, including Norway, is one of the most northern kingdoms of Europe, and includes the following dominions: Denmark Proper, territories in Germany, Norway, part of Lapland, and several islands in the Baltic, and in the German Ocean or North Sea. The most southern part of Denmark is nearly in the same latitude with Dublin; its most northern territories lie quite within the arctic circle.

Denmark Proper is bounded on the north by the Cattegat or Schaggerac Sea, on the south by Germany, on the west by the German Ocean, and on the east by the Sound.

1. *Constitution, Language, Religious Profession.*] The national religion is Lutherism. The king is despotic; but the administration of civil justice in this kingdom is considered as a model for other nations, and all the laws are contained in one quarto volume. Their language is a dialect of the ancient Teutonic, formerly used in all parts of Scandinavia. Those in the higher ranks of life generally use the German or High Dutch language; they also speak the French fluently, and generally use it to strangers.

2. *Divi-*



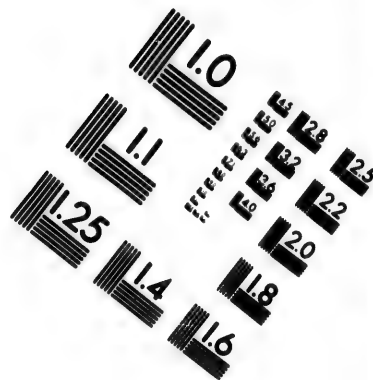
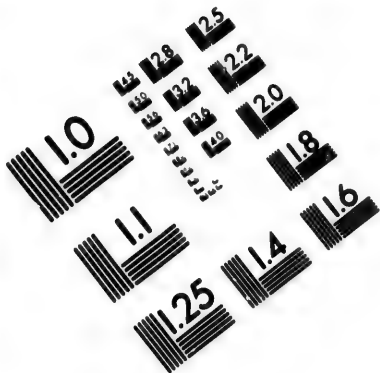
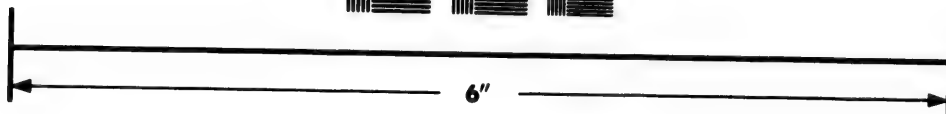
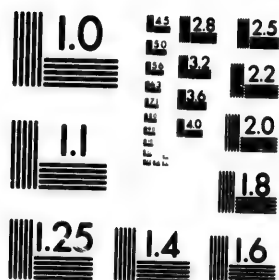


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2. *Divisions.*] Denmark Proper is divided into two parts, called North and South Jutland, and subdivided into the following dioceses :

NORTH JUTLAND.		SOUTH JUTLAND.	
<i>Dioceses.</i>	<i>Chief Towns.</i>	<i>Dioceses.</i>	<i>Chief Towns.</i>
Aalborg,	Aalborg.	Gottorf,	Hefnick.
Wiburg,	Wiburg.	Hederstive,	Hederstive.
Aarhuſen,	Aarhus.	Apenrade,	Apenrade.
Ripen,	Ripen.	Flensburg,	Flensburg.
		Tendere,	Tendere.
		Huſum,	Huſum.
		Eyderſtede,	Eyderſtede.

The Islands of Denmark are,

<i>Iſles.</i>	<i>Town.</i>	<i>Iſles.</i>	<i>Towns.</i>
Seeland or } Zealand, }	{ Copenhagen and Elſineur.	Falster or } Falſtra, }	Nicoping.
Funen,	{ Odenſee or Ot- tenſee.	Mona or Mune,	Stege.
Arroe,	Kopping.	Saltholm,	Samſoe.
Langland,	Rutcoding.	Alſen,	Sunderſburg.
Lalland,	Naxchow.	Femerſen,	Samos.
		Bornholm,	Nex.

3. *Baltic Sea.*] The waters neither ebb nor flow in the Baltic, though a current ſets through the Sound or mouth of it into the German Ocean. Sometimes, indeed, this current is ſtopped by ſtrong winds from the N. W. and then large quantities of water are driven into the harbours of the Baltic. Between the continent and the large iſlands of Zealand and Funen are the two famous mouths or ſtreights call the Great and Little Belt, and the Ore Sound. The latter, which ſeparates Denmark from Sweden, is not above an hundred and thirty-one fathoms broad in the narroweſt part. And this being the uſual paſſage for ſhips in and out of the Baltic, and under the dominion of the king of Denmark, that prince exacts a certain tribute or toll from all ſhips trading to any part of the Eaſt Sea.

4. *Air, Soil and Produce.*] The air is ſharp, but its rigour is abated from its vicinity to the ſea. Their ſummers are very ſhort but hot, and vegetation goes on very faſt. The ſoil is in many places barren, eſpecially on the high mountains, which abound in ſeveral parts of the country; but there are very large and fertile paſtures in the vallies, where black cattle are fed, and many of them ſent to the Netherlands, where they grow to a prodigious ſize. Here is alſo a numerous race of ſtrong though little horſes, eſpecially in Wiburg. In ſome parts there are excellent arable lands, which, beſides producing corn ſufficient for the inhabitants, furniſh conſiderable quantities for exportation. Mecklenburg is in a great meaſure ſupplied with corn from the iſlands of Falſter and Mona; and the Dutch fetch many ſhip loads annually from the iſland of Lalland.

5. *Mountains, Rivers and Lakes.*] None of the mountains of Denmark merit a particular deſcription. The higheſt are on the north-

north-east side of Gottorp; but there are many others diffeminated through the whole country.

The rivers are very numerous in this country, especially in South Jutland and the dutchy of Sleswick, but not one large enough to receive ships of any considerable burthen. The Eyder is the largest, and will admit of stout ships at its mouth; but this is rather a bay than a river. The smaller, however, though not navigable, greatly contribute to fertilize the countries through which they flow. There are a considerable number of lakes too, which, as well as the rivers, abound in fish of various kinds, as salmon, perch, tench, trouts, eels, flounders, &c.

6. *Manufactures and Commerce.*] The Danes have some tolerable manufactures of hardware, and artists of every kind are now pretty well advanced in their respective professions. They may probably soon equal those of other nations, but at present the sale of their productions is almost limited to their own country.

Many attempts have been made to render the trade of this kingdom very extensive, but they have not yet succeeded. It may indeed at present be considered as the center of the important and profitable trade of the Baltic. Here are several companies established for the encouragement of trade, particularly the Asiatic Company, the West Indian and Guinea Companies, a General Trading Company, and an Icelandish Finmark Company. But the favourite project of drawing the extensive trade of Hamburgh to Altena, a town not above a mile distant, but in the dominions of Denmark, has not yet been successful. The exports of this country are black cattle, horses, corn, butter, tallow, hides, stock-fish, train oil, tar, pitch, iron and timber of various kinds: oak is forbidden by a particular ordinance to be sent out of the kingdom. The imports, besides the East and West Indian commodities from their settlements in those parts, consist of salt, wine, brandy, &c.

In the year 1736 a bank was established at Copenhagen, whose notes from ten to a hundred rix-dollars pass current in every part of the kingdom. An insurance company for shipping was also established about the same time, and it appears from the custom-house books of 1770 that three thousand one hundred and sixty ships and small craft entered the port of Copenhagen during that year.

7. *Learning and Schools.*] Besides the university at Copenhagen, consisting of four colleges, there are several well regulated schools in most of the large towns in the kingdom. Denmark has produced several learned men, among whom we may reckon Tycho Brahe, Borrichius, and the Bartholines, especially eminent in astronomy or medicine.

The ancient inscriptions cut upon the rocks in several parts of Denmark have much engaged the attention of the learned. They are in the Runic character, and thought to be historical, but so imperfectly known even to antiquarians themselves, that they are now

ignorant of their true import. This method of cutting the accounts of memorable events upon rocks is thought to be the original method of writing, before paper of any kind or waxen tables were known.

SECTION VI.

NORWAY, ICELAND, &c.

Norway is bounded on the south by the entrance into the Baltic, called the Categate; on the west and north by the Northern Ocean; and on the east by a long ridge of mountains, which separates it from Sweden. It is divided and subdivided in the following manner:

1. Divisions.	Subdivisions.	Chief Towns.
North Division,	{ Wardhuys, or Norwegian Lapland,	{ Wardhuys.
Middle Division,	Drontheim and Berghen,	{ Drontheim, Ber- ghen Stavanger.
South Division,	Anslo or Aggerhuys,	{ Aggerhuys, Frede- rickstadt, Christiana.

2. *Climate and Produce.*] The air in Norway is generally pure and salubrious; very dry in the midland parts of the country, but moist on the sea coasts. In winter the cold is excessive, and the whole country seems covered with ice and snow. The peasants bring the produce of their lands to market upon sledges, and carry back in the same vehicles the commodities they want in their sequestered places of abode. Nor are the heats of summer less remarkable; the various species of vegetables, particularly barley, grow up and ripen in six weeks or two months, vegetation being always accelerated in a wonderful manner when there is only a short season allowed. Hence we need not be surprized to find that notwithstanding the severe frosts great quantities of corn are produced in Norway. The pastures also, especially in the vallies, are equal to those in most countries; so that the inhabitants have cattle, butter, cheese, &c. sufficient for their own consumption. They have also garden vegetables in great plenty; and they have lately made very considerable improvements in gardening, and propagating fruit-trees. Their large and extensive forests form a principal source of their wealth. In these are found amazing quantities of fir, pine, elm, ash, yew, beech, oak alder, &c.

3. *Fossils.*] Norway abounds in quarries of excellent marble of all colours; some detached pieces of alabaster; several kinds of spar, chalk-stone, cement-stone, mill-stone, baking-stone, slate, talc, swine-stone, the magnet or loadstone, and the amianthus or asbestos. In this are likewise found amethysts, agate, granates, beautiful chrystals, pyrites or quartz, &c. but there are no flints.

The

The metals are of several kinds. At Numedale, near Drammen, there is a mine with veins of pure massy silver; there is another with very rich ore at Jarlesberg; and a third at Kondgsberg. There are several copper mines, three of them remarkably rich. Iron mines are found almost every where in the mountains. Here are also mines of quicksilver, sulphur, salt, vitriol and allum.

4. *Animals.*] The tame animals of Norway are a breed of small but well proportioned horses, black cattle, sheep, goats, kids, a few hogs, and a great number of cats and dogs. The wild animals are the elk, the rein-deer, the lynx, the bear, the glutton, the fox, the wolf, the leming, the ermin, the marten, the beaver, the hare, the rabbit, and the wild cat; there are many of them found in all the cold northern countries.

There are most of the birds in Norway that are common to Europe, and its sea coasts are covered with innumerable flights of water fowl; and here are numerous flocks of fowl that are peculiar to the northern countries.

There is scarcely a fish to be named which is not found in the lakes, rivers or seas of Norway; and the latter is the habitation of several extraordinary creatures, among which the most remarkable are the sea-snake and kraken.

5. *Mountains, Rivers.*] The mountains of Norway are remarkable for their extent, their height, and the torrents of water that gush from their declivities. They cover the greater part of the country, and strike a stranger with terror. The roads over these mountains are equally terrible and dangerous, there being often no other path than what is formed by an ill-secured wooden bridge thrown over a breach in a frightful precipice or roaring cataract. These roads wind in such a manner, as to render the passage over the mountain Hardangerfield, about seventy English miles, extremely dangerous. The same may be observed of that over Filefield, which is about fifty miles, and the post road. To prevent travellers from being lost or bewildered, the way is pointed out by posts, fixed at the distance of two hundred paces from each other; and on Filefield are two houses furnished with fire, light, and kitchen utensils, at the public expence, for the convenience of those who are obliged to pass along this dreadful road.

There are several large rivers in Norway, but none that are navigable farther than their mouth for ships of any considerable burthen, on account of the cataracts or waterfalls occasioned by the intervening rocks and cliffs. They are, however, of the greatest use to the inhabitants for conveying their timber from the mountains to the sea-ports, as well as driving their mills. The lakes are not remarkably large, but many of them very deep. We may reckon all these among the curiosities of Norway; and add to these its fathomless caverns and its rapid whirlpools, especially that prodigious one the Maelstrom on its western coast.

6. *Commerce, Language, &c.*] The exports of Norway consist chiefly of the natural productions of the country, as timber, copper, iron, marble, mill-stones, fish, furs, feathers, tallow, tar, oils, salt, allum, vitriol, &c. The Norwegians being chiefly employed in the mines, grazing and feeding cattle, felling of wood, floating timber, burning charcoal, extracting tar from the roots of felled trees, hunting, shooting and bird-catching; their imports consist of many of the luxuries and most of the necessaries of life.

They profess Lutherism, and also speak the same language that is used in Denmark; but their original tongue is that of Iceland.

7. *Farro Isles.*] The Farro islands receive their name from their being in a cluster so close together, that the inhabitants ferry over from one island to another. They are situated in the northern ocean, in sixty-four deg. of north latitude, and seven deg. of west longitude. They are twenty-four in number, and the whole cluster extends about sixty miles in length and forty in breadth. The inhabitants live chiefly by fishing, and add hardly any thing to the revenues of Denmark.

8. *Iceland.*] Iceland situated in the Northern or Atlantic Ocean, is about seven hundred and twenty-six miles in length from East to West, and three hundred from North to South. It lies between sixty-three and sixty-eight deg. of North latitude, and between fourteen and twenty-nine deg. of West longitude; and from its insular situation enjoys a milder temperature of climate than the same latitude on the continent experiences. The face of the country is very mountainous, and on the Southern coasts are islands and rocks, where sea-fowls build in great quantities; most kinds of wild-fowl abound in Iceland, and the surrounding sea yields plenty of fish. The country is well watered with large rivers which flow from the mountains and large lakes, besides innumerable rivulets and streams. In some places there are chalybeate springs, and in many parts of the island boiling hot spouting water springs, of which the most remarkable and the largest is Geyser not far from Skalholt; in approaching towards it a tremendous noise is heard like the rushing of a torrent precipitating itself from stupendous rocks. The water issues from this spring several times in one day, but always by starts, and after certain intervals; and some travellers have affirmed, that it rises to the height of sixty fathoms: it is certain, however, that it is thrown up much higher at some times than at others, but its elevation seldom falls short of ninety feet.

The burning mountains in this country we may consider as the latent cause of the boiling springs; of these the most remarkable are the Hecla, Kotlegau and Oraife. The eruptions of these have at different times occasioned terrible devastations, deluging the country with water, convulsing it with earthquakes, heaving up new islands in the sea, or pouring forth clouds of ashes, smoke and sand in such quantities as to eclipse the light of the sun, and scattering the ruins all over the island; yet the inhabitants are so attached to their native country,

country, they consider themselves as the happiest people on earth. They attend to their fishing and the breeding of cattle. This island produces exceeding fine pasture, which feeds large herds in summer and affords hay sufficient for sustenance in winter. They have kitchen herbs, roots, and some fruit trees, besides many esculent plants which grow wild on the rocks, and in many families supply the place of flour and meal. In some parts of the island a species of small wheat grows spontaneously, and they reduce it to powder by parching it over the fire and then pounding it in mortars. Their total neglect of agriculture has been imagined to have been one of the consequences of a dreadful plague which raged there in the fourteenth century and swept away most of the inhabitants: the few that escaped to tell the melancholy tale had found refuge in the mountains where the contagion did not reach. The same terrible disease extended its baneful influence to Denmark, Norway and Sweden; where such multitudes died that none could be spared to recruit this ruined colony.

The entire commerce of Iceland is monopolized by a Danish company. The exports consist of cured provisions, butter, tallow, oil, wool, skins, furs, down and feathers. The imports are brandy, wine, salt, linen, timber, tobacco, bread, hardware, &c.

The revenue which the King of Denmark draws from this country amounts to about 30,000 crowns per annum.

The inhabitants are descended from the ancient Scythians, a branch of the Celtes, and the island itself made formerly a part of the empire of Scandinavia. During this early period of time, Iceland was full of people; here the chief ministers of their religion resided; and here the celebrated Edda or book of Celtic Mythology was either composed or preserved; and so pure has their language been handed down from one generation to another, that the Icelanders are capable of explaining their most ancient traditional histories.

9. *Greenlands.*] East and West Greenland form the northern boundary of the King of Denmark's dominions, and are, indeed, the limits of all the discoveries hitherto made in that part of the globe.

East Greenland lies in North latitude higher than seventy-six deg. and between ten and eleven deg. of East longitude. It is destitute of people, except a few convicts transported thither from Russia, who are obliged to winter in this inhospitable clime, and to labour for their liberty in procuring skins, furs, tusks of morse, &c. for the Empress or Czarina.

West Greenland lies in North latitude higher than sixty deg. and between five and fifty deg. of West longitude, and is peopled though but thinly.

Through the labours of Danish missionaries, and more especially of those of the Moravians or Brethren's Unity, several congregations have been gathered from the gross superstitions of the country to the profession of Christianity. Their language resembles that of the Indians

Indians of North America ; they have a great number of long polysyllables, and excel in poetry.

The Copenhagen company engross the little trade of this country, and 've cloths, cutlery, and various domestic utensils in copper, brass and tin, for whale-blubber, furs, &c.

S E C T I O N VII.

SWEDEN.

Sweden, including the greatest part of Scandinavia, is situated from fifty-five deg. twenty min. to sixty-nine deg. thirty min. North latitude, and between the twelfth and thirtieth of East longitude. It is bounded on the South by the Baltic, the Sound and the Categate or Schager-rack sea ; by Danish Lapland on the North ; by Russia on the East ; and by the mountains of Norway on the West.

Such a vast tract of country may naturally be supposed to contain a great number of inhabitants ; but these bear a very small proportion to the extent of Sweden, great part of it being rendered uninhabitable by seas, lakes, mountains and marshes.

1. *Divisions.*] This kingdom is divided into seven parts or provinces, and these are again subdivided as in the following synopsis.

<i>Provinces.</i>	<i>Subdivisions.</i>	<i>Principal Towns.</i>
1. Sweden, properly so called, lying between Norway on the West and the Gulph of Bothnia ; is divided into eleven parts, viz.	Uplandia.	Stockholm, Upsal.
	Sudermania.	Nickopen.
	Westmania.	Arosen.
	Nericia.	Orebro.
	Gestricia.	Geval.
	Helsingia.	Hadswickwalt.
	Dalecarlia.	Hedemore.
	Medelpadia.	Setanger.
	Angermania.	Hernofand.
	Jemtia.	Uma, Luta.
	West Bothnia.	Pistoia, Torne.
2. Gothnia or Gothland, on the South Side of Swedeland, into three parts, viz.	E. Gothland.	Norkoping and
	Smalandia.	Calmar.
	Isle of Oeland.	Barkholm.
	W. Gothland.	Gottenburg.
	Vermeland.	
3. Livonia on the South of Finland Gulph	Dalia.	
	Estonia.	{ Revel, Narva, Riga.
	Letten, or Letitia.	
		4. Ingria,

<i>Provinces.</i>	<i>Subdivisions.</i>	<i>Principal Towns.</i>
4. Ingria, on the North East of Livonia.	{ Ingria, proper. Ingermania. Soluska.	Orefcal, or Noteberg. Caperio. Juanegrod.
5. Finland, on the East side of the Gulph of Bothnia.	{ Finland, proper. Nylandia. Carelia. Kexholm. Savolaxia. Tavastin. Cajunia.	Abo. Helsingfordia. Wyburg. Kexholm. Kosnipec. Javastus. Cajeneberge.
6. Swedish Lapland, in the northern part of the country.	{ Anjermania-Lapmark. Pitha-Lapmark. Uma-Lapmark. Lula-Lapmark. Tornea-Lapmark. Kimi-Lapmark.	Aocfalbo. Pitha. Uma. Lula. Tornea. Kimi
7. The Islands of Gothland, Oeland, Aland, Hogland and Rugen.		

The provinces of Livonia and Ingria, with Kexholm and Carelia in Finland, and the islands of Dago and Oefel, are under the dominion of Russia.

2. *Climate and Produce.*] The natural history of Sweden, both as to climate, animals, vegetables and minerals, is much the same with that of Norway, but the inhabitants appear to be more advanced in arts under the direction of the colleges established for the improvement of agriculture, and encouraged by the example of persons in affluent circumstances, the peasants have at length, in a great measure, corrected the natural sterility of their country; and they now in favourable seasons, raise grain sufficient to supply the wants of the inhabitants. The fields in summer are covered with a beautiful verdure, enamelled with flowers, and produce great quantities of currants, raspberries, strawberries and other small fruit. Gothland is the most fertile province in the kingdom, and bears large crops of wheat, barley, oats, beans and peas. If the wheat were sown in the autumn, as it generally is in England, there might be a danger of the grain being destroyed in the long piercing winter; but the method is different in Sweden: the vegetation is there so rapid that the corn is ripe in eight or ten weeks after it is sown; and the soil is so meliorated by the frost and coat of snow during the winter, that the land is fit to receive the seed almost as soon as the cold weather is over.

3. *Exports and Manufactures.*] The produce of their mines is various, but the metals are principally silver, copper, lead and iron. Their manufactures are all of them but lately erected; even that of iron, the chief support of this country, was introduced only in the
sixteenth

sixteenth century. Before that time the Swedes sent their iron ore to the Hanse towns, and brought it back again manufactured into utensils; but they have now founderies for cannon, forges for anchors and fire-arms, wire and flattening mills, &c. the other arts and manufactures, which are common to Europe, they also carry on, as silks, cloths, paper, porcelain, and the chymical preparations of allum, sugar, soap, salt, &c. Vast quantities of copper, brass and steel are also now wrought in this country. To their exports of metals, timber, tar, hemp, flax, hides, peltry, furs, fish, &c. they also add ships compleatly fitted out for sea.

4. *Religious Profession, Language.*] The national profession of religion is the same in Sweden as in Denmark and Norway. There is such an affinity between the Swedish, Danish and Norwegian tongues, which are so many dialects of the Teutonic, that the inhabitants of the three kingdoms can perfectly understand one another. From many Runic inscriptions still to be seen near the ancient depositories of the dead, it is evident that the Swedes made use of that character in the ages of Pagan idolatry.

5. *Learning, Schools.*] Several branches of learning have been cultivated of late years in this country. Those in the higher ranks are generally conversant in polite literature. The natural philosopher, Haselquist, who died as he was making discoveries in the oriental regions. That able civilian, politician and historian, Puffendorf, was a native of Sweden, as well as the late Linnæus, who, to the deepest researches in some branches of natural philosophy, united the utmost systematic precision. The passion of Christina for literature, her munificence to the learned, and her own acquirements in science, are sufficiently known. The fine arts at this time were particularly patronized by the throne, and several learned Swedes in other kingdoms bear great reputation in science.

The universities of Sweden are those of Upsal and Abo; the former of which was instituted four hundred years ago, and being patronized by several successive monarchs, has gained particular celebrity; but the latter is not so well endowed nor so flourishing. Seminaries for the education of youth are established in different towns; and every diocese is provided with a free-school, in which boys are qualified for the university. There is a royal academy of sciences at Stockholm; and likewise a royal academy of painting, sculpture and military mathematicks. Several volumes of memoirs have been published by the members of these institutions, which have obtained a favourable reception abroad; however, the greatest literary curiosity in this country is a manuscript copy of a translation of the writings of the Evangelists into Gothic, by Ulphila bishop of Thrace, above one thousand three hundred years old.

6. *History, Government.*] In 1387, Margaret Queen of Denmark and Norway was chosen Queen of Sweden. It remained subject to Denmark till 1523, when Gustavus Vasa asserted its independency, and the Swedes have continued free ever since. The King was limited in

in every exercise of government, and even in the education of his own children: but lately the constitution has been greatly changed, by the states surrendering their power to the king.

S E C T I O N VIII.

MUSCOVY OR RUSSIA.

The empire of Russia is the largest upon the whole globe, it is greater than all the rest of Europe, than the Roman empire in the zenith of its power, or the empire of Darius subdued by Alexander; extended in length from the Baltic on the West to within a few miles of America on the East, upwards of two thousand leagues; and above eight hundred in its greatest breadth from North to South. Its boundaries on the West, are Sweden and the Baltic; on the East, China, and that part of the Pacific which separates Asia from America; on the North, by the Frozen Ocean and the impenetrable Arctic Region, and on the South it has Prussian, Polish, Turkish, Persian, Indian and Tartarian nations. In length, from the Isle of Dagho as far as its most distant Eastern limits, it contains very near a hundred and seventy degrees; so that when it is noonday in the West, it is very near midnight in the Eastern parts of this empire. In breadth it stretches three thousand wersts from South to North, which makes eight hundred leagues. On the South of this extensive empire the longest day is not sixteen hours; on the North it stretches out to the length of three months.

1. *Climate, Inhabitants, Religious Professions.*] In so extensive a tract of country the soils are extremely various. Beyond the 60th degree of latitude, corn scarcely ever arrives at maturity; and beyond the 70th hardly any species of fruit is produced; but in the middle provinces of the empire the soil is fruitful, the woods abound with a variety of animals, the plains are stocked with cattle, and the rivers teem with a variety of excellent fish. In the more Southern provinces, the climate is hot; and where there is a sufficient depth of soil flowers and fruits arrive at great perfection, the earth is covered with verdure, and indicates a happy fertility. There seems hardly less variety among the inhabitants of this extensive empire which includes in itself numerous nations of Tartars, Kamtschatdales, Samojedes, Laplanders, &c. Far to the North, in some remote parts of this empire, they live in caverns, and are no more than four feet and a half high: the ancients had a confused idea of these people under the name of Troglodites and Northern Pigmies, as they had of the Tartars under the name of Scythians; the languages of all these widely dispersed people are different and their manners

manners are various; in some parts they are much given to roving and plunder; in others their lives seem innocent and harmless; in some parts they give their attention to agriculture; in others they depend upon the productions of a fruitful but uncultivated soil. Some of them who do not meet in societies make but little, and it is even said no profession of religion; others that live in herds or clans; some offer up their orisons perhaps to the principal objects of their wants, idolising a sheep's skin because they find nothing more useful than this animal; and others embrace the doctrines of the Greek church, which is the national profession of Russia; where, however, other societies are tolerated and encouraged.

2. *Divisions.*] Muscovy or the European part of Russia, besides the territories wrested from Poland comprehends the following provinces which may be divided into northern, middle, eastern, western and southern.

<i>Provinces.</i>	<i>Chief Towns.</i>	<i>Provinces.</i>	<i>Chief Towns.</i>
NORTHERN.		WESTERN.	
Lapland,	Kola.	Gr. Novogorod,	Novogorod.
Samoieda,	Golatina.	Rus. Finland,	Wyburg.
Bellamornskoy,	Kemi.	Kexholm,	Kexholm.
Meseen,	Meseen.	Karelia,	Notteburg.
Dwina,	Archangel.	Ingria,	Petersburg.
Syrianes,	Kangorod.	SOUTHERN.	
Permia,	Isma.	Livonia,	Riga, Narva,
Ruhenski,	Kargapol.		Revel, Dorpat,
Belafceda,	Vitegre.		Pernaw, Pliskow.
MIDDLE.		Smolensko,	Smolensko.
Peressaf,	Razenskoi.	Zernigof,	Zernigof.
Belozero,	Belozero.	Seefsk,	Seefsk.
Wologda,	Wologda.	Ukrain, or the	
Jeressaf,	Jeressaf.	Country of the	
Tweer,	Tweer.	old Cossacks.	Kiof, or Kiow.
Moscow,	Moscow.		
Belgorod,	Woronetz, or		
	Veronese.		
EASTERN.			
Bulgar,	Bulgar.		
Kanfan,	Kanfan.		
Lit Novogorod,	Nise-Novogorod,		
Don Cassacks,	Donetskoi.		

3. *Produce, Manufactures, Commerce.*] The natural history of this country is much the same with that of Scandinavia both as to animal, vegetable and mineral productions; and climate and soil; and within the present century their amazing improvements in sciences and arts have enabled them to avail themselves of their natural advantages, and become among their neighbours a great commercial people.

ple. Peter the Great may be accounted the political father of this country. Patient of fatigue he travelled and laboured in other countries to acquire their improvements, and then with determinate severity imposed them upon his rude and uncultivated subjects at home, effecting a change in his empire which astonished the world and procured him the epithet of the Great.

To all the articles of manufacture and commerce which they have in common with Sweden and Denmark, the Russians add the costly commodities of the East, as silk, cotton, teas, gold, &c. These they receive by caravans from China, and from India and Persia by way of the Caspian sea.

4. *Mountains, Forests, Rivers, Lakes, Canals.*] The Zimnopoias are the principal mountains of Russia, they are supposed to be the celebrated Montes Riphæi of the ancients; they are remarkable both for their amazing height and the perpetual snows that cover their summits: but besides these, there are a vast variety of others, some forming extensive chains, and others scattered singly in different parts of the country.

Forests abound in this extensive country; in many places prodigious tracts of land form one continued forest, producing immense quantities of timber, pitch, tar and turpentine.

Few countries exhibits more or larger rivers than Russia, but the principal are the Wolga, the Don or Tanais, the Boristhenes or Dnieper and the Dwina. The lakes are also numerous, but the most remarkable are those of Ladoga and Onega. From lake to lake and from river to river, the Czar Peter planned extensive and spacious canals, some of these he opened with incredible labour and expence for several hundreds of miles; others he did not live to see compleated: they have, however, since his day been carried into execution.

5. *Language, Learning, Moscow, Petersburg.*] The Slavonian language forms the basis of that of Russia; but the latter is enriched with many words from the Greek. The alphabet consists of forty-two characters, principally Greek, as they were written in the ninth century; but as this did not express every particular sound, recourse was had to several Hebrew letters, and some arbitrary signs were invented. Different dialects however prevail in different provinces, the principal of which are those of Muscovy, Novogorod and Archangel; and those in higher ranks generally speak French and High-Dutch, while their priests speak the modern Greek.

The Czar Peter, who may be said to have first enrolled his country among the polished nations of Europe, was not inattentive, among his other labours, to literature and science: he erected several academies and other seminaries of learning in various parts of his extended dominions: he founded no less than three academies in Moscow, one for classical learning, one for mathematicks, and the other for navigation and astronomy. This city, long the capital of the empire and the centre of the Russian dominions before they
extended

extended themselves on the side of China and Persia, stands in the middle of a large beautiful and fertile plain on the Moskva, and on two lesser rivers, which unite their streams with the Occa, and discharge themselves into the Wolga. In the thirteenth century it was no more than a cluster of cottages, the inhabitants wretchedly groaning under oppression from the race of Jenghiz-Khan.

At Petersburg he founded an University and four academies: the first is for the sciences and belles-letters, the second for navigation, the third for dead languages, and the fourth for tactics. The Petropolitan Society have published several volumes of papers, which have been well received by the literati of Europe, especially those on mathematical, astronomical and philosophical subjects.

But the Czar not only founded the academies of Peterburgh, but the city itself, and from him it took its name. It is situated on the gulph of Kronstadt, in the midst of nine branches of rivers, by which its different quarters are divided. The rivers are branched out into seven canals, which wash the walls of one of the imperial palaces, of the admiralty, of the dock-yard for the gallies, and of several manufactories. There was nothing of all this in 1702, it being then an impassable morass; and in 1703 there were only a few fishermen's huts here. But Peter saw the benefit that must result from a city built on this spot, and accordingly employed above thirty-thousand men for several years in driving piles, and laying the foundation of this celebrated place.

6. *History, Government.*] In 1058 the Poles conquered Russia, but it cannot be ascertained how long they kept possession of it. About 1200 it was invaded by Batu, Khan of the Mungls; these people held it in subjection in a great measure till 1540, when John Basilowits completely asserted its independency. This prince greatly enlarged his dominions, and about the middle of the sixteenth century the Russians discovered and reduced the vast country of Siberia. Their government is monarchical.

SECTION IX.

POLAND.

Before its late dismemberment, Poland, with the annexed dutchy of Lithuania, was bounded on the north by Livonia, Muscovy and the Baltic Sea; on the east by Muscovy; on the south by Hungary, Turkey and Little Tartary; and on the west by Germany; extending from forty-seven deg. forty min. to fifty-six deg. thirty min. north latitude; and between sixteen and thirty-four deg. east longitude.

1. *Divisions.*] It has been divided into the provinces of Great and Little Poland, Polish Prussia, Samogitia, Courland, Lithuania, Maffovia, Polachia, Polefia, Red Russia, Podolia and Volhinia; and again subdivided as in the following table.

GREAT

P. VI.

<i>Palatinates.</i>	<i>Chief Towns.</i>	<i>Palatinates.</i>	<i>Chief Towns.</i>
GREAT POLAND on the West.		LITHUANIA North-East.	
Poznań,	Poznań.	Wilna,	Wilna.
Kalisz,	Kalisz, Gnesna.	Brasław,	Brasław.
Bresty,	Bresty.	Polesko,	Polesko.
Wladislaw,	Wladislaw.	Wipiesk,	Wipiesk.
Dobrzyn,	Dobrzyn.	Troki,	Troki, Grodno.
Plockow,	Plockow.	Minski,	Minski.
Rawa,	Rawa,	Mscislaw,	Mscislaw.
Lencicia,	Lencicia.	Novogrodeck,	Novogrodeck.
Saradia,	Saradia.	WARSOVIA or MASSOVIA.	
Inowlczo,	Inowlczo.	Warsaw,	Warsaw.
LITTLE POLAND on the West.		Czerlko,	Czerlko.
Cracow,	Cracow.	Novogorod.	
Sandomira,	Sandomira.	POLACHIA in the Middle.	
Lublin,	Lublin.	Bielsk,	Bielsk.
POLISH PRUSSIA North-West.		POLESIA in the Middle.	
	Dantzic.	Bressici,	Bressici.
	Elbin.	RED RUSSIA South-West.	
	Marienburg.	Chelm,	Chelm.
	Culm.	Belz,	Belz.
	Thorn.	Lemberg,	Lemberg.
SAMOGITIA.		PODOLIA South-East.	
	Rosienne.	Up. Podolia,	Carminiec.
	Midnick.	Low. Podolia,	Braslaw.
COURLAND North.		VOLHINIA South-East.	
Courland Prop.	Goldingen.	Up. Volhinia,	Lufec.
Semigalia,	Mittaw.	Low. Volhinia,	Bialgorod.

2. *Air and Soil.*] Poland is generally a champaign country; the air is mostly temperate; in the northern parts it is cold, but exceeding healthy. The soil in general is extremely rich. The earth is of various kinds, colours and properties; some being excellent for the potter's use, furnishing all Poland with earthen-ware; while others supply the pipe-makers and other artificers with clays of different sorts.

3. *Vegetables, Animals and Fossils.*] This country is extremely fruitful, producing vast quantities of corn, and the pastures, particularly in Podolia, are so rich, that the height of the grass is often such as to conceal the cattle that are grazing from the sight of passengers. In many places there are vines, whose grapes are agreeable to the taste, but the wines made from them usually prove sharp. It is said that in May and June the inhabitants gather a sort of manna, which falls on the grass during the night; they esteem it a great delicacy, and have various ways of dressing it. This seems rather unaccountable; but as the fifth and sixth months are the season when plants are copiously supplied with juices; perhaps it is these that oozing through the pores of the herbs are concreted on their surface by the cold and dew of the night and form the manna, rather

rather than any extraneous or foreign matter derived from the atmosphere.

Horses, asses and oxen, distinguished by the Names of uri and buffaloes, wolves, bears, eiks, bohacks, foxes, hares, &c. run wild in the forests of Poland. Here are also birds and fishes of various kinds

Here are mines of gold, silver, copper, lead, iron, pit-coal, vitriol, arsenic, marble of all colours, and stones of various kinds; but the most curious are their different sorts of salt mines.

4. *Mountains, Forests, Rivers, Lakes.*] The principal mountains of Poland are the Cropach or Carpathian mountains, which form a craggy ridge, extending three hundred miles in length, separating Poland from Hungarv; these are covered with perpetual snows. In the palatinates of Cracow is a mountain called the Wonderful, covered with aromatic plants, flowers, oaks and pines; full of metals and minerals; and abounding both in fresh and salt springs. Near the centre rises, with a remarkable noise, a spring of clear water, the ebullition of which is said to be greater or less according to the increase or decrease of the moon.

Poland, the eastern part particularly, is remarkable for the extent of its forests and woods.

The principal rivers are the Vistula or Weyfel, the Wortá, the Neister or Tyras, the Nieper or Boristhenes, the Niemen, the Bog or Vagus, and the Dwina.

Of the few lakes in Poland Gopto, or the White Lake, is the most remarkable, and is said to turn the complexion of those who wash in it swarthy.

5. *Commerce and Manufactures.*] The little trade of Poland is principally carried on at Dantzic, which may be considered as the emporium of this country. The exports of Poland consist of corn, honey, wax, hemp, flax, furs, timber, pot-ashes, salt, salt-petre, brimstone, vitriol and quick-silver; and its imports of wines, brandy, spices, wrought silks, cloth, stuffs, jewels, fables, martens, and tin, steel and iron wares. The little manufactures of this country are some linen and woolen cloths, and a little hardware.

6. *Curiosities.*] The wonderful mountains and salt mines already mentioned form the principal curiosities of Poland. Besides these we may reckon as rarities the grottos or catacombs under the mountains of Kiow, in the desarts of Podolia, wherein are found a great number of human bodies perfectly preserved, being neither so hard nor so black as the mummies of Egypt; some attribute this curiosity to the nature of the soil, which is a dry sand; and it has been reported, perhaps with truth, that wild men have been frequently found in the woods. Authors in accounting for the reason of such phenomena, suppose them to have been left there when infants by their parents, whom the Tartars frequently obliged to fly from their habitations, and that these children, so exposed, have been nourished by the bears. And indeed when we are told among the other desolations of war, that a conquering Turk shall take

take in his arms a whole cluster of captive children, and fling them from his horse to any one that may challenge them, we may perhaps have reason to conclude that these accounts are founded rather on melancholy fact than imagination.

7. *Language, Learning and Schools.*] The Polish language is a dialect of the Sclavonic, and on account of the vast number of consonants it employs is extremely harsh and unharmonious; however the Latin tongue is commonly spoken, even by those of inferior rank, though without the least regard to accent, quality or purity of language. High Dutch and Russian are likewise understood in the provinces bordering on these respective countries.

This country seems very unpropitious to the growth of literature, though Copernicus, the great restorer of the true astronomy, as well as Vorstius and some other learned men, were natives of Poland. The contempt which the nobility have ever shewn for learning, the vassalage of the lower classes, and the gloomy superstition which pervades all ranks of men, are circumstances which have wonderfully retarded the progress of arts and Sciences.

The Polish universities are those of Cracow, Posnia and Wilna. The first consists of eleven colleges, and has the superintendence of fourteen grammar schools dispersed through the city; the other two are not so eminent.

The nobility and the bulk of the nation are of the church of Rome, but here are vast number of Protestants and followers of the Greek church.

8. *History.*] Poland was the seat of the Vandals in ancient times. In 1396 Jajellon, Duke of Lithuania, by marrying Hedwiga, Queen of Poland, became king of this country. From that time Lithuania was held as a fief to Poland; and in 1501 Alexander, Duke of Lithuania, succeeding to the crown of Poland, the union of the two countries was confirmed, and they remained united till the late dismemberment.

S E C T I O N X.

PRUSSIA.

Prussia, the country of the ancient Borussi, taken in a limited sense, is bounded on the north by part of Samogitia, on the south by Poland proper and Masovia, on the east by part of Lithuania, and on the West by Polish Prussia and the Baltic; but taken in its full extent this kingdom consists of various territories disseminated over Germany, Poland, Switzerland, and the northern regions, partly derived from legal succession, but by far the greater part from war, violence and usurpation.

1. *Territories.*] The principal divisions of which this monarchy is composed are Ducal, now Regal Prussia, situated in Poland; Brandenburg,

Brandenburgh, Prussian Pomerania and Swedish Pomerania, in Upper Saxony; Magdeburg and Halberstadt in Lower Saxony, Glatz in Bohemia, Minden, Ravensburg, Lingen, Cleves, Meurs and Mark in the dutchy of Westphalia; East Friesland, Lippe, Gulick and Tacklenburgh in the circle of Westphalia; Gelder in the Netherlands, Neufchatel in Switzerland, and part of Silesia, and the countries lately wrested from Poland.

2. *Climate, Soil, Animals and Fossils.*] In countries so various and districts so dispersed, any general account of the air must be liable to many exceptions, however, upon the whole, it seems favourable to health. The soil is fruitful in corn and other commodities, nor is the country deficient in a proportionate number of animals common to the climate, such as horses, cows, sheep, deer, bears, wolves, wild boars and foxes; and the rivers and lakes are amply stored with fish.

There are not many mines in Prussia; a few however are found of copper and lead, and some of iron. These afford materials for the employment of artists, but very little metal in its crude state is exported. The principal minerals found in this country are sulphur, allum, nitre, and lapis calaminaris. Here are several quarries of stone, and some of slate; a species of marble has also been discovered in many of the mountains.

Several kinds of bitumen too are found here, but the principal is amber, of which Prussia has been considered as its native country. This celebrated bitumen, though originally generated in the earth, is found in plenty in the Baltic sea, especially near the sea-shore of Sudwic, where it swims on the water, and is taken up by nets.

3. *Mountains, Forests, Rivers and Lakes.*] There are not many remarkable mountains in Prussia. There is however a pretty extensive chain on the frontiers of Poland, and several single ones scattered through the different parts of the kingdom. There are several large and extensive forests, which afford great quantities of fir and other excellent timber.

The principal rivers are the Vistula, the Pregel, the Memel or Mammel, the Passage, and the Elbe; they are all subject to inundations, whereby the country is often damaged. The lakes and canals afford great conveniences for transporting merchandize; and for its extent the kingdom of Prussia has the most inland navigation of any other in Europe, the Netherlands excepted.

4. *Manufactures, Commerce.*] Under the politic administration of the late King, who seemed to have adopted the justest maxims of enriching himself, by bestowing the means of affluence on his subjects, every art and manufacture daily improved and encreased; and those of glass, iron works, silk, cloth, camblet, liren, stockings, paper, powder, and copper and brass are particularly flourishing.

Being advantageously situated for trade, the extension of which is promoted by a college of commerce and navigation, Prussia carries on a considerable foreign traffick; but as its imports are trifling,
compared

compared with its exports, the balance of trade in its favour is greater than that of any other European country.

5. *Curiosities.*] The amber pits of Prussia form its principal natural curiosities.

6. *Schools, Language, Religious Profession.*] At Koningsberg is an university, founded by the Margrave Albert in the year 1544, and a college stiled the Collegium Fredericianum; and academies or schools for the instruction of youth are dispersed throughout the kingdom. The language varies little from that of Poland.

Different professions of religion are tolerated in Prussia, but the nationally established ones are those of Luther and Calvin.

7. *History, Government.*] The Prussians or Borussians were not heard of as a people till 1007, when they were governed by dukes of their own. After a succession of bloody wars, they were conquered by the German knights of the Teutonic order in 1228. In 1454 the Poles subdued the western part of it, and in 1525 the eastern part. In 1683 it became independent. In 1702 the dukes assumed the title of king; and the territories added to this country by the late king are very considerable. The constitution of Prussia is absolute monarchy.

SECTION XI.

GERMANY, BOHEMIA, HUNGARY, &c.

Germany is bounded by the German ocean, Denmark and the Baltick on the north; by Poland, Hungary and Bohemia on the east; by Switzerland and the Alps on the south; and by the dominions of France and the Low Countries on the west: extending from forty-five deg. four min. to fifty-four deg. forty min. north latitude, and from six to nineteen deg. forty-five min. east longitude. This country is the seat of a great empire, and of many dependent sovereignties of different denominations, and under various modifications of government; its affairs are blended with those of the other nations of Europe, whose Germanic territories are necessarily exhibited in its divisions.

1. *Divisions.*] In territories so numerous, and possessions so minute, where the dominions of a prince are sometimes of less extent than an English manor, to attempt a particular description of each would be tedious and perplexing; and the divisions laid down, even by modern writers, are often uncertain and contradictory. Those most generally received, and their rise, are as follows: The German empire was formerly divided into two grand parts, the upper and the lower; but the Emperor Maximilian, grandfather and predecessor of Charles V. divided it into ten great circles; and this mode of division was confirmed by the diet of Nuremburg in 1552. However, as the circle of Burgundy, or the seventeen provinces of

the Low Countries, has been detached from the empire, the circles of Germany are only nine; three lie in the north, three in the middle, and three in the south.

The circles are subdivided into principalities, dutchies, marquises, electorates, palatinates, counties, baronies, abbies, bishopricks, &c.

Circles.

Chief Towns.

- UPPER SAXONY.** Stetin, Stralsund, Stendel, Berlin, Potsdam, Francfort, Custrin, Wittenburg, Bautzen, Gollits, Dresden, Missein, Erfurt, Meiningen, Zeitz, Altenburg, Weimar, Gotha, Eifnach, Saalfeld, Schwartzburgh, Belchingen, Mansfield, Hall, Naumberg, Stolberg, Northhausen, Dessau, Zerbst, Bernberg, Kothen, Hall, Plowen, Mersberg.
- LOWER SAXONY.** Keil, Gortorp, Meldorp, Glucstat, Hamburg, Lubeck, Lawenburg, Brunswic, Wolfenbutle, Rheinsteen, Blachenberg, Hanover, Grubbenhagen, Gottingen, Lunenburg, Zell, Bremen, Verden, Swerin, Gustrow, Hildesheim, Magdeburg, Halberstat.
- WESTPHALIA.** Embden, Oldenburg, Delmonhurst, Hoya, Diepholt, Munster, Paderborn, Osnaburgh, Lippe, Minden, Ravensburg, Arensburg, Tecklenburg, Ritberg, Schawenburg, Cleef, Dusseldorf, Juliers, Aix, Ham, Liege, Huy, Bentheim, Steinfurt.
- UPPER RHINE.** Cassel, Marburg, Darmstadt, Homberg, Rhinefeld, Wonfeld, Dillenburg, Diets, Kerberg, Siegen, Idstein, Wilbaden, Biellstein, Otweiler, Usingen, Frankfort, Erpach, Spire, Deux Ponts, Catzenelbogen, Waldec, Solms, Hanau, Eysenberg, Sayn, Wied, Witgenstein, Hatzfeld, Westerberg, Fuld, Hirschfeld.
- LOWER RHINE.** Heidelberg, Philipsburg, Mannheim, Frankendal, Cologne, Bon, Mentz, Aschaffenburg, Triers, Worms, Simmeren, Rhinegravestein, Meurs, Veldents, Creutznach, Leymingin.
- FRANCONIA.** Wurtzburg, Bamberg, Aichstadt, Cullenbach, Onspach, Henneburg, Coberg, Hildburghausen, Nuremburg, Mergentheim, Reineck, Bareith, Papenheim, Wertheim, Cassel, Schwartzenburg, Holack.
- AUSTRIA.** Vienna, Gratz, Cilley, Clagenfurt, Lavemund, Laubach, Zerknits, Trieste, St. Veits, Gorits, Inspruck, Brixen, Trent.
- BAVARIA.** Munick, Landshut, Ingolstadt, Donawart, Ratibon, Amberg, Saltzbach, Frießengen, Passau, Newburg, Saltzburg, Hallen.

SUABIA.

Circle.
SVABIA.

Chief Towns.

Stutgard, Tubingen, Hailbron, Dourlach, Weiler, Augsburg, Hockstet, Blenheim, Ulm, Constance, Mindelheim, Furstemburg, Hohenzollern, Oetting, Koningseck, Gemund, Waldburg, Limpurg, Kempten, Buchaw, Lindau, Nordlingen, Memminghem, Rotwell, Rheinfield, Lauffenburg, Burgaw, Friburgh, Brisac.

2. *Climate.*] Though Germany, taken in a literal sense, may be said to enjoy a temperate air, and an agreeable climate; with respect to the degrees of its warmth, purity and salubrity, they are of course various, according to the situation of the country to the north or to the south, and to or from the sea. The champaign tracts have a different air from that of the mountainous; and in a deep, marshy and moist soil it varies from that of elevated, dry and sandy situations. Hence fruits and grain arrive at an earlier maturity, and come to greater perfection in some places than in others.

3. *Vegetables.*] The cultivated parts of Germany are remarkable for their fertility; for though these form only a small part of the country, yet provisions are cheaper and in greater plenty, than in most other countries in Europe. The Germans likewise cultivate hops, anise, cummin, flax, hemp, tobacco, madder, woad, saffron, and the utmost variety of pot-herbs, sallads and roots. Their most valuable fruits are apples, pears, cherries, plumbs, chesnuts, almonds, olives, medlars, figs, peaches, apricots, oranges, lemons, citrons, grapes, nuts, filberts, walnuts, and almost every other species common to the French or Italian climates. The Rhenish and Moselle wines are celebrated over all Europe for their peculiar brightness, as well as for their digestive quality, which renders them more sovereign in some disorders than any other medicinal aid.

4. *Animals.*] The domestic animals of Germany are the same as in other European countries, but perhaps more numerous than in any other. The wild beasts are chiefly deer, (of which there are seven or eight different species) boars, hares and rabbits; and in some places bears, wolves, lynxes, foxes, wild-cats, badgers, martins, chamois, wild-goats, &c.

Of most species of tame fowl Germany contains very great abundance; and among the wild inhabitants of the air common to this climate, we may enumerate swans, bustards, pheasants, wood-cocks, partridges, grouse, snipes, larks, field-fares, ortolans, quails, wild-geese, ducks, spoon-bills, storks, falcons, herons, hawks and singing birds. And their rivers and lakes abound with various kinds of fish.

5. *Fossils, Baths and Mineral Waters.*] Mines of silver, copper, lead, iron, quicksilver, salts, sulphur, nitre and vitriol are found in many parts of Germany, especially in the circle of Austria. Coal-pits are disseminated over almost every circle. Here are carbuncles, amethysts, jasper, sapphire, agates, turquois-stones, and the finest rubies; and also quarries of marble, slate, chalk, oker, allum and amber.

Germany is celebrated for its mineral springs and baths; the most remarkable are those of Aix-la-Chapelle, Spa, Pyrmont, Embs, Wisbaden, Schwalbach, Wildungen and Brakel; the last of which possesses a strength which renders them capable of intoxication, for which reason they are inclosed and guarded from abuse.

6. *Mountains, Forests, Rivers, Lakes.*] Germany contains many internal mountains; but the principal ridges serve as external boundaries. Bohemia is surrounded with hills; Silesia is separated by those called Riesengebirge; and a still more considerable range divides Silesia and Moravia. The Austrian circle is extremely mountainous; the upper palatinate, Franconia and Suabia likewise contain many hilly tracts; and, indeed, almost every circle contains either single mountains, or continuous ranges. Germany, however, in general contains many plains of immense extent.

This country was formerly very woody, and there are still large forests remaining; but that memorable one the Hercynian forest, which, in the time of Cæsar, was nine days journey in length and six in breadth, is now divided into smaller woods, which go by particular names, and in many places it is quite destroyed.

The principal rivers of Germany are the Danube, the Rhine, the Elbe, the Oder, the Weser, the Moselle, the Spree, the Penne, the Mein and the Saar. The Danube, famous for its cataracts and whirlpools, is so exceedingly broad from Vienna to Belgrade, that ships of war have frequently engaged on it.

The most capital German lakes are those of Constance and Bregentz, Chiemsee or the lake of Bavaria, and the Zecknitzer-see in the dutchy of Carniola.

7. *Manufactures, Commerce.*] With respect to manufactures and mechanicks; the Germans at present make velvets, beautiful silks, rich silk, cotton and woollen stuffs, linen, fustian, ribbands, lace, embroidered work, tapestry, paper, &c.: They are very expert in leather dressing, printing and dying: in fabricating every kind of metal works both massive and minute few nations can equal them; nor are they less celebrated for their performances in glass cut and polished, lacquered ware and porcelain. Augsburgh is famous for its productions in silver, and Nuremburgh for its variety of ingenious and elegant wares in wood, ivory, metal, stone and glass.

The revocation of the edict of Nantes by Lewis XIV. which obliged the French protestants to take shelter in foreign countries, proved of the utmost advantage to the German manufactures; before that period those of velvets, silks and stuffs were in the rudest state, but they have since been brought to the greatest neatness and perfection; persecution has often in this way defeated its own intention.

In point of commerce Germany derives vast advantages from its situation; lying in the centre of Europe, possessing an extensive sea coast, and being intersected by a number of navigable rivers, it can with the utmost facility export the superfluities of its home commodities and manufactures, and receive those of foreign countries.

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The imports of Germany bear but a small proportion to the exports, so that the balance of trade may safely be concluded to be vastly in their favour, yet the Germans are not so much given to commerce as some of their neighbours; and, except the Asiatic company of Embden, established by the King of Prussia, there is not any capital commercial society in the whole empire. The towns of Hamburg, Lubeck and Bremen still retain the name of Hans Towns, and have a league actually in force between them, under the sanction of which they conclude treaties of commerce with foreign powers; but this is but a shadow of that grand confederacy for the promotion of trade and navigation which was entered into about the middle of the thirteenth century, by many towns in Germany, and in other countries bordering on the German ocean and Baltic, and obtained the name of the Hanseatic League. This confederacy, after subsisting upwards of two centuries with great commercial advantage, from various concurring reasons which proved detrimental to trade, ceased in its general cogency and effect.

8. *Curiosities, natural and artificial.*] Every court of Germany has a cabinet of curiosities, artificial and natural, ancient and modern; the various antiquities, the coins, the manuscripts, and the prodigious libraries which the literati of this country have collected together, and the many reliques, whether real or imaginary, which superstition treasures up and regards with a veneration greater than that of the virtuosi, or rather curiosi, for their most precious remains of antiquity may all be reckoned among the rarities of this country; their bridges also; their gothic palaces, cathedrals, castles, and especially their town houses, are very curious; and their natural curiosities, as petrifications, and a variety of curious fossils; caves, into one of which they have proceeded twenty miles without discovering its end; and from others water gushes out with great noise and impetuosity when it thunders. If this happens in Autumn it is said a vast number of ducks of a black colour, fat, blind, and almost devoid of feathers, are forced out with the water, which in a fortnight's time are entirely fledged, get their sight and fly away. Their mineral springs and baths. Their natural curiosities are unnumbered.

9. *Schools and learned men.*] The universities in this empire are thirty-six in number, of which seventeen are Protestant, seventeen Romish, and two mixed. Besides these there are a great number of colleges, gymnasia, pedagogies, Latin schools, and several academies and societies for promoting the study of natural philosophy, the belles lettres, antiquities, &c.; among the latter of which are the imperial Leopoldine academy of the nature curiosi; and the academies of arts and sciences at Vienna, Berlin, Gottingen, Erfurth, Leipzig and Duisburg. At Dresden and Nuremberg are academies for painting, and at Augsburg is the imperial Franciscan academy of fine arts.

Every prince, baron and man in affluent circumstances in Germany is either a chymist or natural philosopher. Among their learned

ed men Stahl, Swieten, Storck and Hoffman have been accounted eminent in physick ; Ruvinus and Dillenius in botany ; Heister in anatomy and surgery ; Newman, Jewmerman, Patt and Margff in chymistry ; and Leibnitz, Wolfius, Puffendorf, Thomasius, Otto Guericke and Kepler in philosophy. Germany has also produced good geographers, historians and political writers.

10. *Profession and Language.*] The resolutions of several conventions have been, that no other religion but the Romish, Lutheran and Calvinist should be introduced or tolerated in the holy Roman empire or Germany ; notwithstanding which many other societies are in different parts allowed the free exercise of their religion ; and the Jews in particular are tolerated in the imperial cities and many other parts.

The German language is a dialect of the Teutonic, without the least affinity to the Celtic, and is called the high Dutch, being the mother-tongue of the whole empire ; it abounds with consonants, is extremely harsh to the ear, and varies so much in its dialect that the people of one province seldom understand those of another. Latin is spoken very fluently by those in higher ranks ; and in most of the courts they speak French, though that of Vienna and some others prefer the Italian. In this fine city, the capital of the empire, a very great variety of inhabitants are to be met with, as Greeks, Transilvanians, Slavonians, Turks, Tartars, Hungarians, Croats, Poles, Spaniards, French, Italians, &c. in their particular habits.

11. *History.*] About three hundred and ninety years before the christian era, some colonies of Gauls under Segovesus settled in Germany. From the time of Augustus the Romans at different times gained several advantages over the Germans, till about the latter end of the third century they lost all their possessions in this country.

In 432 the Huns, a Tartar nation dislodged by the Chinese, conquered a great part of Germany, expelling the Alans, the Goths and Visigoths, who in their turns took possession of the countries of their neighbours, and gave a new appearance to the polished nations of Europe.

In 788 Charlemagne became master of all Germany, forcing the inhabitants to a profession of christianity. It remained subject to his posterity till 886, when the different princes revoked, and assuming their ancient independence, placed Arnulph, king of Bavaria, on the throne ; since which time Germany has been considered as an elective empire. The houses of Saxony, Franconia and Swabia by turns acquired the imperial power till 1440, when Frederick III. duke of Austria was elected emperor, and the imperial dignity continued in the male line of that family for three hundred years, when, after the wars in the low countries, in which so many of the European powers were concerned, at the peace of Aix-la-Chapelle, the grand duke of Tuscany was acknowledged emperor by right of his wife

wife Maria Teresa, Queen of Hungary, and daughter to the emperor Charles VI.

12. *Hungary, Bohemia, &c.*] The kingdoms of Hungary and Bohemia, and the provinces of Transylvania, Sclavonia, Croatia and Morlachia, may also be considered as a part of the German empire, having all by treaty or conquest been brought under the dominion of the house of Austria.

The national profession or political establishment of worship in these countries is that of Rome; but both Protestants and Greeks are very numerous.

Their natural history, curiosities, manufactures and commerce are much the same with those of Germany. The inhabitants are composed of a variety of people differing in name, language and manners; and this diversity has been thus accounted for: 'The enthusiastic spirit for liberty which so long opposed the Roman arms, made its last stand here against those conquerors of the world, who by degrees drove the remains of the different vanquished nations into these quarters; the thickness of the woods, the rapidity of the rivers, and the natural strength of the country favoured their resistance; and their descendants still retain the most legible characters of those unsubmitting heroes from whom they sprung. Without regarding the arrangements made by the ambition of the sovereigns of Europe, they seem to acquiesce under that government with most pleasure which allows them the greatest latitude of privilege and ancient freedom; however their attachment seems greatest to the house of Austria, but the Austrians or Germans did not even know the names of their various tribes till they learnt them from their military muster rolls, when they poured their troops into the field in support of the Pragmatic sanction.

The Pragmatic sanction, a term which often occurs in the modern German history, is a provision that was made by the emperor Charles VI. to preserve the indivisibility of the Austrian dominions in the person of the next descendant of the last possessor whether male or female; this provision has frequently been disputed by other branches of the house of Austria, and France and Spain have opposed its effect; but hitherto all attempts to abrogate it have proved ineffectual, and the Pragmatic sanction is strongly guaranteed by almost all the powers in Europe.

The Romans also in their turn made a stand in this quarter, before the Goths and Vandals of the north entirely overpowered them, and among the variety of dialects which however seem to be principally Sclavonic, some of the descendants of the Legionary forces are still to be distinguished in the interior parts by their use of the Latin tongue; the Latin however is not confined to these, but is pretty generally understood, together with the German or high Dutch throughout the Austrian dominions.

Hungary lies between forty-five and forty-nine deg. north latitude, and between sixteen and twenty-three deg. east longitude. It is bounde

bounded on the north by Poland; on the east by Transylvania and Walachia; on the south by Slavonia; and on the west by Austria and Moravia: Its principal divisions are,

Divisions. *Chief Towns.*

UPPER HUNGARY. { Presburg, Newhausel, Leopoldstadt, Chremnitz, Schemnitz, Esperies, Caschau, Tokay, Zotmar, Unguar, Mongats, Waradin Great, Segedin, Agria, Pest.

LOWER HUNGARY. { Buda, Gran, Comorra, Raab, Altenburg, Weissenburg, Kanisha, Five Churches.

Its universities, if they deserve the name, are those of Firnam, Buda, Raab and Caschau.

Bohemia lies between the parallels of forty-eight and fifty-two deg. north latitude, and between twelve and nineteen deg. east longitude. It is bounded on the north by Saxony and Brandenburg; on the east by Poland and Hungary; on the south by Austria and Bavaria; and on the west by the Palatinate of Bavaria. It is divided into Bohemia Proper, Silesia, and Moravia.

Bohemia Proper, mostly subject to the house of Austria, contains the towns of Prague in which is an university, Koning'sgratz, Glatz, subject to the king of Prussia, and Egra.

Silesia, mostly subject to Prussia, contains Breslau, Glogaw, Crossen and Jagendorff; Tropaw and Teschen both subject to Austria.

Moravia, entirely subject to the house of Austria, contains Olmutz, Brin and Igla.

Transylvania is bounded on the north by Upper Hungary and Poland; on the south by Walachia; on the east by Moldavia and Morlachia; and on the west by Upper and Lower Hungary. It lies between forty-five and forty-eight deg. north latitude, and between twenty-two and twenty-five deg. east longitude. It is about one hundred and eighty miles in length, and one hundred and twenty in breadth.

Slavonia is bounded on the north by the river Drave; on the south by Stiria in Austria; on the east by the Danube; and on the west by the Save. It lies between forty-five and forty-seven deg. north latitude, and between sixteen and twenty-two deg. east longitude, being two hundred miles in length and sixty in breadth.

Croatia lies between forty-four and forty-seven deg. north latitude, and between fifteen and seventeen deg. east longitude. It is bounded on the north by the river Save; on the south by Morlachia; on the east by Bosnia; and on the west by the duchy of Carniola. It is about eighty miles in length and seventy in breadth.

Morlachia lies between forty-four and forty-six deg. north latitude, and between sixteen and seventeen deg. east longitude; is about one hundred miles in length and thirty in breadth. On the north it is bounded by Carniola and Croatia; on the south by Dalmatia; on the east by Bosnia, and on the west by the gulph of Venice.

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forests, which afford excellent timber, and a thousand aromatic or medicinal herbs.

The cattle and sheep in Switzerland are very numerous, and they have an exceeding good breed of horses. On the mountains are bears and wolves, white and yellow foxes, hares which turn white in winter, the chamois goat, marmosets, and the alpine mice, which are in reality a species of badger.

The mountains in Switzerland abound in mines of iron, marble of various colours, chrystal, spar, common gypsum, slate, sandstone, chalk, mundic, terra figillata, sulphur, saltpetre, rock-salt and pit coal.

Mineral springs are numerous in this country; but the most celebrated baths are those at Baden, which from the antiquities there found, as well as from the testimony of Tacitus, appear to have been known to the ancients.

3. *Mountains, Rivers and Lakes.*] The mountains of Switzerland are many and very stupendous. They divide almost every canton from each other, and the whole country is separated from Italy by a long chain of them called the Alps.

The principal rivers in this country are the Rhine, the Aar, the Rufs, the Inn, the Rhone, the Thur and the Oglio; the sand of some of these is said to yield gold dust.

The lakes are numerous, there being scarce a mountain without one on the top of it; but the principal are those of Geneva, Constance, Zurich, Biende, Thun, Neufchatel and Lucern.

4. *Commerce and Manufactures.*] The trade of Switzerland is greatly facilitated and promoted by its rivers and lakes, and by its droves of pack-horses for the conveyance of goods over the mountains where no carriages can pass. The articles in which it consists are fat cattle, sheep, horses, cheese, butter, hides, skins, and the productions of their own manufacture, the principal of which are silks of various kinds, gold and silver brocades, several sorts of linen, lace, thread, cotton, neckcloths, a variety of woollen manufactures, stuffs, silk and worsted stockings, gloves, handkerchiefs, hats, paper, leather of all sorts, porcelain, earthenware, toys, watches, clocks and other hardwares. Their imports are chiefly grain and salt.

5. *Curiosities, natural and artificial.*] The natural curiosities of this country are almost innumerable, but the most extraordinary are the glaciers or vallies of ice, which has in some places accumulated to a prodigious height. The heat of the sun in summer cracks the ice with a noise like that of thunder, and in winter the expansion of the ice in the cavities of the rocks splits them asunder with similar concussions and reports, rending, scarping and breaking the precipices in such picturesque and curious forms as to give them the appearance of prodigious piles of ruins.

The monuments of antiquity near the baths of Baden, the ruins of Cæsar's walls, and their extraordinary bridges (their time of foundation

foundation uncertain) are ancient curiosities of art; and many of the modern public buildings are curious, particularly the college of the jesuits at Friburg; and the public libraries and cabinets contain antiques, valuable manuscripts, and curiosities of every denomination.

Indeed the whole aspect of this romantic country is naturally curious, and the cultivated improvements of the natives mounted up to the summits of the hills, and their cloud-reaching roads carried over the mountains with uncommon labour and perseverance, now insinuated through tremendous rocky chasms, and now, as it were hung aloft in air on the dizzy brink of frightful precipices, may fill us with astonishment, while those beautiful little solitudes, the very curious hermitages of this country, may surprize with as lively though less amazing emotions; of these the most curious lies about two leagues from Friburg, among woods and rocks: It consists of a chapel, oratory, steeple, hall, refectory, kitchen, rooms, stairs, cellar, and other conveniences, all hewn out of a rock, even to the chimney and steeple, though the latter is fifty-four feet in height. All this was the twenty-five years labour of an hermit. But this is not all, with inexpressible labour he has levelled the side of the rock, brought earth from the neighbouring parts, and formed a delightful garden. That nothing might be wanting to render his retreat perfect, the hermit observing drops of water distil from the several parts of the rock followed the veins, by which means he made a reservoir sufficient to water his garden and allay his thirst.

6. *Learning, Schools, Language.*] The sciences are cultivated in this country with assiduity and success. Calvin, whose name is so well known, instituted laws for the city of Geneva, and Rousseau, who is principally known to the English as a novelist, but admired by the French as a poet in their own language, was a native of Geneva. Several of the Swiss have distinguished themselves in the fine arts, and particularly in painting, sculpture and engraving.

Switzerland contains many excellent foundations for the instruction of youth, especially among the Protestant cantons, who besides their gymnasia and schools in various places have academies at Zurich, Bern, Lausanne and Geneva. The Romish cantons have likewise several gymnasia, and a college at Lausanne. But of all other literary institutions the university of Basil, founded in 1459, is most celebrated, being adorned with a very curious physic garden, containing the choicest exotics; and adjoining to a valuable library is a museum, extremely well furnished with natural and artificial curiosities, and a variety of medals and paintings.

Several languages are spoken in Switzerland, but the most common is the German, in which all their state and public transactions are carried on. On the borders of France and Italy the languages of both these countries are adopted, but neither of these borrowed tongues is spoken with purity or elegance.

7. *History, Government.*] The Switzers are the descendants of the ancient Helvetii, who were first conquered by Julius Cæsar, and afterwards lived in subjection to the Germans, till being cruelly treated they revolted in 1308. In 1315 the several states of which this country is composed made their league perpetual; and in the year 1648, at the treaty of Westphalia, this republick was declared a free and independent state.

SECTION XIII.

HOLLAND.

The Netherlands lie between fifty and fifty-four deg. north latitude, and between seven and two deg. east longitude. They are bounded on the north by the German ocean; on the east by Germany; on the west by the British channel or German ocean, and on the south by France and Lorrain.

Under the title of Netherlands are comprehended, in a general sense, seventeen provinces. The seven most northerly obtain the name of Holland, or the United Provinces; and the other ten are called Flanders, or the Austrian and French Netherlands.

1. *Divisions.*] The Provinces of Holland and their chief towns are as follow.

Provinces.

HOLLAND.

Chief Towns.

Amsterdam, Rotterdam, Delft, Hague, Haerlem, Leyden, Dort, Williamstadt, Naerden. Gorcum, Heusdem, Saerdam, Edam, Hoarn, Enchusen, Alkimaar, Monckdam, Purmerent, Briel, Helvoetsluys, Goree, Somerdyke, Burg. Middleburg, Flushing, Terveer, Rammakins, Zerricksee, Brewertshaven, Tolen, Catts, Ter- goes.

ZEALAND.

Lewarden, Dockum, Franker, Harlington, Sloot. Groningen, Winschotten, Dam.

FRIEZLAND.

GRONINGEN.

OVERYSEL.

GELDERLAND

and ZUTPHEN.

UTRECHT.

2. *Air, Soil, Animals.*] The United Provinces lie very low, and are without mountains or extensive forests to diversify the scene. The air is foggy, moist, and would be very unwholesome if not purified by the frost in winter, when the east wind usually blows for about four months, during which season their harbours are generally frozen up. The soil is by nature unfavourable to vegetation, an obstacle which the industry of the inhabitants has in a great

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great measure furmounted, in making canals and ditches to drain their lands, which by this method are rendered fit for pasture, and in many places for tillage.

Their animals are much the same with those in England. The inhabitants buy lean cattle in Denmark and the north of Germany, which their pastures fatten to a prodigious bulk. Their horses are very large. They have a fine breed of sheep, whose wool is highly valued; and it is said that in some places they have wild boars and wolves. Storks build and hatch in their chiinnies. Their other birds are the same as ours, as are also the fishes found in their seas and rivers, though somewhat larger; but they have neither herrings nor oysters on their coasts.

3. *Rivers.*] The principal rivers in this country are the Rhine, the Vecht, the Maese, and the Scheld which divides below Antwerp into two branches, the one called the western and the other the Oster Scheld. The Rhine originally ran in one channel by Utrecht and Leyden, but that being choaked up, it now, on entering Holland, forms three branches, viz. the Waal, Lech and IJssel. These great rivers are joined in their course by a number of smaller ones, and several canals; these contribute much to the improvement of commerce, on these the people are continually passing and repassing in their trackscuits or passage boats, and in the winter both men and women by thousands on their skates.

4. *Commerce, Manufactures.*] The United Provinces though they produce very little in themselves yet almost all the products and commodities of the globe may be found here, and bought nearly as cheap as in the places they were brought from; and so extremely industrious and enterprising are the Dutch that there is scarcely a manufacture they do not carry on, or a state with which they do not trade.

5. *Curiosities.*] There are but few natural curiosities in Holland. The stadthouse at Amsterdam may be esteemed one of the artificial kind: It stands upon thirteen thousand piles driven into the ground. The outside makes a grand appearance, and the inside is at once magnificent and convenient. Several museums, containing antiquities and curiosities, are to be found in Holland and the other provinces, particularly in the university of Leyden. But their land-making dykes are the greatest curiosity. In fact the country may be considered as rescued from the ocean by these artificial bulwarks, and when the dykes happen to be broken down the damage is prodigious, the place of villages and towns, plantations and fields becoming one extensive tract of sea.

6. *Religion, Language.*] The national profession of religion in this country is the Presbyterian or Calvinism, none but people of this persuasion being admitted into any office or post in the government, excepting the army; nevertheless all professions and societies are tolerated and allowed their respective meetings and assemblies for public worship, among which are numbers of the Lutherans, Romanists, Moravians, Baptists, Quakers and Jews.

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The native language of this country is low Dutch, a corrupted dialect of the German, and even unintelligible to those who understand the German tongue or high Dutch; however the people of fashion are capable of conversing in the French language, and many of them in English.

7. *Literati, Schools.*] With respect to learned men Holland has produced Erasmus and Grotius, Boerhaave and Grævius, Burmann and the Van Haaren. In the fine arts the Dutch have chiefly distinguished themselves in painting, though they are not destitute of skilful statuary.

They have five universities, viz. Leyden, Utrecht, Groningen, Harderwicke and Franeken; two Gymnasia, one at Amsterdam, and another at Deventer, besides an academy of Sciences at Haerlem, and several famous grammar schools in different places.

8. *History, Government.*] This country was formerly part of the territories of the ancient Belgæ, who were conquered by Julius Cæsar. After this it was successively under the Franks, its own counts, and the Earls of Hainault, and the house of Burgundy. In 1534 the people, rather than submit to the bishop of Utrecht, surrendered their liberties to Charles V. who in 1556 gave them to his son Philip of Spain. Being oppressed by the Spaniards, they, together with other neighbouring provinces, revolted in 1572, and at length compelled their old masters to acknowledge them an independent republick, as they continue to be to this day.

SECTION XIV.

FLANDERS.

1. *Divisions.*] Flanders is divided between the Dutch, the Austrians and the French, and is divided into ten provinces.

Provinces.

Chief Towns.

BRABANT.	Brussels, Louvain, Vilvorden, Landen, Boisleduc, Breda, Bergen-op-Zoom, Grave, Lillo, Steenberg.
ANTWERP.	Antwerp.
MALINES.	Mechlin.
LIMBURG.	Limburg, Maastricht, Dalem, Faquemont or Valkenburg.
LUXEMBURG.	Luxemburg, Thionville, Montmedy.
NAMUR.	Namur, Charleroy.
HAINAULT.	Mons, Aeth, Enguien, Valenciennes, Bouchain, Conde, Landrecy.
CAMPRESIS.	Cambray, Crevecœur.
ARTOIS.	Arras, St. Omer, Aire, St. Venant, Bethune, Terouen.

FLANDERS.

Province.
FLANDERS.

Chief Towns.

Sluys, Axel, Hulst, Sas Van Ghent, Ghent, Bruges, Ostend, Newport, Oudenard, Courtray, Dixmude, Ypres, Tournay, Menin, Lisle, Dunkirk, Douay, Mardike, St. Amand, Gravelines.

2. *Climate, Soil and Fossils.*] The air of Brabant, and along the maritime districts, is generally esteemed thick and insalubrious, but in the interior parts it is extremely healthful, and the seasons are far more healthful than in Britain. The soil is in most parts abundantly fertile, producing corn and fruits in great plenty, and affording excellent pasturage; and even the more sterile districts yield very plentiful crops of flax.

In the Provinces of Luxemburg and Limburg are mines of iron, copper, lead and brimstone, and quarries of several species of marble. Namur abounds in coal-pits and a kind of fat bituminous earth used as fuel, with plenty of curious fossil nitre.

3. *Rivers, Canals.*] The principal rivers of Flanders are the Maese, Scheld, Sambre, Demer, Dyle, Geet, Neeth, Rupple, Sanne, Deule, Dender, Lis and Scarpe; and the most capital canals are those of Brussels, Ostend and Ghent.

4. *Commerce, Manufactures.*] The Austrian Netherlands by the united aids of culture, commerce, and the enterprising spirit of its inhabitants, was long the most opulent and beautiful spot in Europe. The most elegant manufactures were brought to all possible perfection. The cities were rich and magnificent beyond description, and the whole face of the country exhibited the most enchanting appearance. These qualities, however, exist at present but in a very inferior degree; neglected by its respective governments, and outstripped in every commercial pursuit by Holland and Great Britain, Flanders has sunk in splendor in proportion as those powers have risen. The trade of the Flemings at present consists chiefly of their own manufactures, viz. fine linens, particularly a sort made at Cambray, and from thence called cambric; delicate laces for which Mecklin is the grand mart, and the woollen manufacture, wherein it is said that Posterwicke alone employs five hundred looms. Oudenarde is famous for its beautiful tapestries; Flanders is remarkable for breeding black cattle, and Luxemburg abounds in corn, great part of which is sent to foreign markets.

5. *Curiosities.*] In 1607 sixteen hundred gold pieces were found at Dendermonde, and proved to be a collection of ancient medals of Antoninus Pius, Aurelius and Lucius Verus. Some Roman highways are yet entire; and ruins of temples and other buildings are found in many parts. The other curiosities of this country consist chiefly in their public edifices and congregation-houses, in many of which there are highly finished paintings.

6. *Profession, Language.*] The doctrines of the church of Rome is the national establishment of Flanders; but others are also tolerated.

The inhabitants on the frontiers of Holland speak Dutch, as those who reside in the provinces subject to France use a very bad French; the

the rest are a mixture between both, and their language is a different dialect of the German from that of the Dutch.

7. *Literati, Artists, Schools.*] The elegant arts in this country have arrived at greater perfection than the useful. The belles lettres, rather than philosophy, have engaged the attention of their literati; and the Flemish sculptors and painters possess a very superior degree of excellence, and form a school of themselves. The animated productions of Reubens and Vandyke are very universally admired. Flamingo or the Fleming's models for heads, especially those of children, are thought to have never yet been equalled; and the ingenious arts of weaving tapestry was long confined to the Flemings alone.

The universities of Flanders are four, St. Omer's, Douay, Tournay and Louvain.

SECTION XV.

FRANCE.

France lies between forty-two and fifty-one deg. north latitude, and between five deg. west and eight deg. east longitude. It is bounded on the north by the Netherlands and the English channel; on the east by Germany, Switzerland and Italy; on the south by the Mediterranean and Pyrenean mountains; and on the west by the bay of Biscay.

Provinces.

Chief Towns.

PICARDY.	Amiens, Guise, St. Quentin, Peronne, Abbeville, Boulogne, Ardres, Calais, Crespy, Guionex.
NORMANDY.	Rouen, Caudebec, Evreux, Gournay, Caen, Lisieux, Bayeux, Contance, Avranches, Seez, Alençon, Dieppe, Havre de Grace, Harfleur, Cherbourg, Honfleur, Albemarle, Granville.
CHAMPAGNE.	Troyes, Sens, Langres, Provins, Rheims, Rethel, St. Dizier, Chalons, Joinville.
I. OF FRANCE.	Paris, Senlis, Crespy, Pontoise, Beauvois, Soissons, Laon, Meaux, Lagay, Melun, Mants, Montargis, Nemours.
BRETAGNE.	Rennes, Nantz, Brioux, St. Malo, Dole, Vannes, Triguier, Breil, Quimper, Morlaix, Port Louis or Ruavet, Port L'Orient.
ORLEANNOIS.	Orleans, Blois, Tours, Angers, Beaufort, Nevers, Mans, Nogent, Chartres, Vendosme, Poitiers, Luon, Angoulême, Rochelle, Rochfort, Aubigni, Bourges, Montargis, Saumur, Richlieu.
LIONNOIS.	Lionois, Beaujeu, Feurs, Clermont, St. Flour, Bourbon, Archibant, Gueret.

PROVENCE.

*Provinces.**Chief Towns.*

PROVENCE.	Aix, Riez, Senez, Digne, Arles, Marseilles, Toulon, Frejus, Grace, Vence, Glandeve, Sisteron, Apt, Forcalquir, Avignon, Carpentras, Orange, Hieres, Antibes.
LANGUEDOC.	Thoulouse, Alby, Foix, Perpignan, Lauraguais, Narbonne, Bezier, Nismes, Montpellier, Mende, Viviers, Puy.
GUIENNE.	Bordeaux, Bazas, Agen, Rhodes, Saintes, Perigueux, Limoges, Cahors.
GASCONY.	Aughe, D'Acq's, Albert, Condom, Verdun, Bayonne, Ayre, Mirande, Lombes, St. Palais, Maudouls, Pau, Tarbe, St. Lizier.
DAUPHINE.	Vienne, Valence, Grenoble, Gap, Embrun, Die, Buis, St. Paul, Briançon.
BURGUNDY.	Dijon, Autun, Chalons, Semur, Auxerre, Charolles, Maçon, Chatillon, Dole, Befançon, Vesoul, Salins, Poligny, St. Claude, Bourg Belley, Gex, Trevoux, Montbelliard.
LORRAIN.	Nancy, Mirecourt, Vaudrevange, Sarlouis, Sarbruck, Bar-le-Duc, Michael, Pontamoufon, Clermont, Metz, Toul, Verdun.
ALSACE.	Straßburg, Hagenau, Fort Lewis, Weissenburg, Landau, Colmar, Schlestat, Munster, Mulbach, Forette, Mulhausen, Befort, Hunningen.

2. *Climate, Soil, Plants and Animals.*] The climate of France is more settled than ours, however, if the extremes be as great there, the transitions from heat to cold, and from rain to fair weather appear less sudden and uncertain than those of our islands. In the interior parts of the kingdom the air is very temperate and salubrious. In the northern parts the winters are intensely cold; but towards the south so mild that many invalids retire thither from England at that season to avoid the rigour of our climate. The quality of the soil varies greatly, according to its situation. The upper part of Provence is proper for corn, and the lower for high-flavoured fruits. Burgundy and Picardy produce corn and flax, fruits, wines and oils in great plenty. Though France however produces almost every luxury of life, the heats in many places parch up the ground and destroy the hopes of the year; and hence the poor inhabitants are often obliged to subsist on chestnuts and rye. The French, however, have not been inattentive to promote the cause of agriculture; they have instituted different academies expressly for this purpose, and proposed premiums for its improvement; but they are particularly attentive to the culture of their vineyards which yield excellent grapes, from which great quantities of wine are annually made.

France contains few animals either wild or tame, wolves excepted, which are not usually met with in Great Britain. The horses,

black cattle and sheep are neither so numerous nor so valuable as those of England. Those animals called game are extremely fine and plentiful; and what may seem a paradox, in France, which we are taught to consider as a land of perfect slavery, the game is neither guarded by legal restrictions nor partial indulgences as in England.

3. *Fossils and Mineral Springs.*] France contains several veins of metals; in Languedoc there are mines of gold and silver, and in Alsace some of silver and copper; but both are too expensive to be wrought to advantage. Alabaster, marble, jasper and coal are also found in several parts, and Brittany abounds in mines of iron, copper, tin and lead. A mine of oker has been discovered at Berry which serves for melting metals, and dying the finest drab-cloths. Excellent turquoises, the only precious stones France produces are found in Languedoc; but marble and freestone quarries are common in almost every province.

France is celebrated for its mineral waters; but those of Bareges near the borders of Spain, under the Pyrenean mountains, are now preferred to all the rest. At Bagucis near Bareges are several salutary mineral waters and baths; as there also are at Forges in Normandy, Sultzbach in Alsace, and at St. Amand.

There are several other remarkable springs, particularly one near Aigne in Auvergne which boils violently, and makes a hissing noise like water when thrown upon lime; this water has no taste, but is of a poisonous quality, and the birds that drink of it expire immediately.

4. *Mountains, Forests.*] The principal mountains of France are the Alps, which divide it from Italy; the Pyrenees which separate it from Spain; the Vauze which divides it from Burgundy and Alsace; Mount Jura which separates Franche Comte from Switzerland; the Cévennes in the province of Languedoc, and Mount Dor in the province of Auvergne.

The chief forests in France are those of Orleans and Fountainbleau, the former contains fourteen thousand acres planted with oak, elm, ash, &c.; the latter is nearly as large. Besides these there is another near Morchismoir, a very considerable one. France likewise contains great numbers of woods, which are some of them large enough to claim the appellation of forests.

5. *Rivers, Canals, Lakes.*] The principal rivers in France are the Rhone, the Soane, the Garonne, the Charente, the Loire, the Seine, the Rhine, the Mæse or Meuse, the Schelde, the Somme and the Var. There are also several little rivers which it would be tedious to particularise; though they greatly contribute to facilitate the inland navigation, which is also greatly improved by canals chiefly planned and executed in the reign of Lewis XIV. Regular locks for carrying boats over eminences were first erected in this country.

The

The lakes in France are very inconsiderable. There is one at Issaire in Auvergne ; a second at La Bessè ; and a third on the top of a hill near Alegre, which vulgar report declares to be bottomless.

6. *Commerce, Manufactures.*] The articles of trade in France are its wines, brandy, vinegar, &c. Fruits, as prunes, prunellos, dried grapes, pears, apples, oranges and olives ; drugs, oils and chymical preparations ; silk embroidery, tapestry, cambricks, lawns, laces, brocades, and woollen manufactures in imitation of those of England ; paper, parchment, hardware and toys.

Henry IV. laid the foundation of trade in this country. In 1598 he published the famous edict of Nantz, which secured to the protestants the free exercise of their religion ; and having composed foreign and civil wars, he applied himself with wonderful attention and success to cultivate the happiness of his people, by encouraging arts and manufactures. It was he that first introduced canals into France, taking the hint from his neighbours in the Netherlands. Before his reign the silk manufacture was scarcely known in France ; but so rapidly did it afterwards increase, that in the reign of his grandson Lewis XIV. the city of Lyons alone employed eighteen thousand looms. However the unjust, and indeed impolitic revocation of the edict of Nantz, the expulsion of the Protestants, and the ruinous wars maintained by France, decreased the number of manufacturers in a very high degree, so that their silk manufacture is now rivalled by that of England where the French refugees found encouragement and protection.

The French trade to the different countries of Europe is extensive and lucrative. In the West Indies they possess several valuable and important islands from which they derive immense benefit ; in the East Indies they likewise retain several advantageous settlements.

7. *Curiosities, natural and artificial.*] Springs and caverns form the principal natural curiosities of this kingdom. In the forest of St. Aubin du Cormier in Bretagne there is a subterranean cavern through which there flows a rapid torrent of water ; and another near Niours, from which issues a violent wind. In Alsace there is a cavern out of which flows an oily liquor ; and at Salins in Burgundy are several, remarkable for their salt springs. The cave of the Notre Dame de Beaune in Dauphine is between four and five fathoms broad, and from five to eight deep ; and at Besançon is another above three hundred feet under ground, in the bottom of which is a small river said to be frozen in summer and flowing in winter.

France contains several curious remains of antiquity, many of which have been traced back even to the times of the Celts ; and those of the Romans are numerous in this country. At Orange there is a triumphal arch, and another at Rheims almost entire. At Nîmes many ruins of antiquity are to be found, among which is the temple of Diana, the amphitheatre, and a house erected by

the emperor Adrian called the *Maison Quarree*. The celebrated Pont du Garde was raised by the Roman colony at Nismes, to convey a stream of water over a valley between two mountains for the use of that city, and continues to this day in the most perfect repair; it consists of three bridges or tiers of arches raised one above another, the height being one hundred and seventy-four feet and the length seven hundred and twenty-three. At Arles in Provence is a Roman obelisk of granite fifty-two feet high and seven in diameter at the base, all of one stone. Roman temples are frequent in France; and at Lyons are the remains of that built by the sixty nations in Gaul in honour of Augustus and the Romans. These are the chief public antiquities, and in the cabinets of the curious there are innumerable other ones on a smaller scale.

8. *Religion, Language.*] The Romish is the established profession of France; but the papal authority is very limited in this country, insomuch, that without the king's permission and ratification no law of the church, either framed by the bishops or the pope, can subject any one to external penalties or punishments, or even to church discipline; and the present monarch in his conduct to his subjects seems happily an example of religious toleration. The French language is chiefly composed of words radically derived from the Latin, with many of German origin introduced by the Franks. The Academie Françoise, expressly instituted for the purpose of improving the language, was also of great service to literature; the French from that period began to write with elegance and precision; their native language was studied with grammatical minuteness, and all its most captivating beauties displayed. This elegant and easy language has now become the most universal of all living tongues, and is generally spoken in all the courts of Europe.

9. *Schools, Literati, Artists.*] In France are twenty-eight universities, Aix, Angers, Arles, Avignon, Besançon, Bourdeaux, Bourges, Caen, Cahors, Dol, Douay, Fleche, Mountabon, Montpellier, Nantz, Orange, Orleans, Paris, Perpignan, Poitiers, Pontamoufon, Richlieu, Rheims, Soissons, Strasburg, Thouloufe, Tournon and Valence. Paris alone contains eight academies, namely, three for literary pursuits, that called the French academy, that of inscriptions, and that of sciences; one for painting and sculpture; another for architecture; and three for equitation and other military exercises. The wits, the literati, the men of science that France has produced are numerous, and their names are established among the learned of Europe. Charlemagne at an early period attempted the revival of ancient learning in France, and in some measure removed the Gothic veil; but till the reign of the polite and learned Francis I. cotemporary with Henry VIII. of England, the learning of the French was little more than a subtle quibbling and pedantic sort of logic. By degrees, however, the study of the Greek and Roman classics gave a new turn to their literary pursuits.

suits. The works of the two Stephens, Malherbe, Balzac, and the society of Port Royal enriched the French poetry or improved the prose; but the reign of Lewis XIV. was the Augustan age of France, and produced Racine, Corneille, Moliere and Boileau, Bourdaloue, Bossuet, Flechier and Massillon, Descartes and Pascal. The prince though illiberal in his religious principles, was an enthusiast for sciences and arts; his reign produced, besides other artists, several eminent painters, particularly Poussin, Le Brun and Le Sueur; since his time Fenelon, Montesquieu, Maupertuis, D'Alembert, Buffon, Voltaire and D'Argens have been conspicuously eminent in the respective lines they pursued, and the sciences and arts are still in high cultivation in France.

10. *History, Government.*] France, in antiquity, under the name of Gaul was often engaged in wars with the Roman people. It was principally reduced under Julius Cæsar, and remained in the possession of the Romans till the destruction of that empire, when it became a prey to the Burgundians, Goths and Franks. In the year 800 Charlemagne swayed the sceptre of France. In 880 the Normans ravaged a part of this country; they settled in Neustria, and in 907 seized Brittany, Picardy and Champagne. When William the Norman prince had made a conquest of England, he and his successors after him held their territories in France by inheritance, by conquest and by treaty; these varied in their extent at different times, till in 1558 the French conquered Calais, Guisnes, and all that the English held in France. The constitution of this country is monarchical, but the parliaments seem at this time to be struggling with the Grand Monarque for an extension of their privileges.

S E C T I O N XVI.

SPAIN.

Spain lies between thirty-six and forty-four deg. north latitude, and between ten deg. west and three deg. east longitude. It is bounded on the north by the Bay of Biscay and the Pyrenean mountains; on the south by the Straights of Gibraltar; on the east by the Mediterranean sea, and on the west by Portugal and the Atlantic Ocean.

1. *Divisions.*] It is divided into the following kingdoms, principalities or provinces.

Provinces.

GALICIA.

ASTURIA.

Chief Towns.

Compostella, Mondonedo, Lugo, Ortense, Tuy, Corunna, Ferrol, Vigo, Betanzes, Rivadavia.

Oviedo, Santillana, Avilles, St. Vincent.

BISCAY.

BISCAY.	Bilboa, Tholosa, Vittoria, Port Passage, St. Sebastian, Fontarabia, St. Andrew, Lacedo, Ordunna, Placentia.
NAVARRÉ.	Pampeluna, Olita, Tudela, Estella, Sanguesa.
ARRAGON.	Saragossa, Jaca, Huesca, Balbastro, Taracona, Albarasin, Teruel, Ainsa, Catalajud, Boria.
CATALONIA.	Barcelona, Urgel, Balaguer, Lerida, Tortosa, Girona, Tarragona, Roses, Vich, Cardonna, Solsonna, Puycerda, Manresa.
VALENCIA.	Valencia, Villa Hermosa, Origuela, Segorbe, Xativa, Alicant, Denia, Gandia, Morviedro, Villareal, Alzira, Altea.
MURCIA.	Murcia, Lorca, Carthagera, Caravaca, Mula.
GRANADA.	Granada, Malaga, Almeria, Guadix, Ronda, Antiquera, Braga, Loya.
ANDALUSIA.	Seville, Jæn, Corduba, Medina Sidonia, Cadiz, Gibraltar, Port St. Mary, Ezeja, Bæza, Ofuna, St. Lucar, Anduxar, Carmona, Alcala-real, Lucena, Arcos, Marchena, Ayamont, Ubeda, Moguer.
OLD CASTILE.	Burgos, Logronno, Calahorra, Soria, Osma, Valladolid, Segovia, Avila, Siguenza, Roa, Aranda, Calzada, Negera, St. Domingo.
NEW CASTILE.	Madrid, Toledo, Cuenca, Ciudad Real, Alcala de Henarez, Almanza, Escurial, Gaudalaxara, Brihuega, Calatrava, Villena, Requena.
LEON.	Leon, Placencia, Toro, Zamora, Astorga, Salamanca, Alva, Ciudad Rodrigo.
ESTREMADURA.	Merida, Badajox, Placentia, Coria, Truxillo, Elleren, Alcantara Medelin.

The Spanish islands in the Mediterranean are Majorca, Minorca and Ivica.

2. *Climate, Soil, Produce.*] The air of Spain is dry and the sky serene and clear, except during the equinoctial rains; but in the southern provinces during the summer months the heat is excessive.

The soil is extremely fertile, but the natives indolent to excess, suffer it to become sterile for want of cultivation, and scarcely raise corn sufficient for the necessary calls of life. In many places the richest and most delicious fruits grow almost spontaneously, particularly oranges, lemons, prunes, citrons, almonds, grapes and figs. The Spanish wines are in high estimation among foreigners; and even sugar canes arrive at the utmost perfection; saffron, honey and silk are produced in great abundance in almost every province. Some of the mountains are clothed with wood, fruits and herbage to their very summits. A variety of aromatic herbs grow every where, imparting a fine flavour to the flesh of the sheep and kid which feed on them. Seville is especially celebrated for its oranges and Murcia produces mulberry trees in such abundance that the product

product of its silks amounts to 200,000l. a year. This country, however, is much infested with locusts which sometimes darken the meridian sun, consume the verdure of the fields, and destroy the hope of the year; and from this dreadful calamity whole provinces have felt all the horrors of famine; and the inhabitants are extremely inattentive to the destruction of the eggs of these formidable insects, which might timely prevent these fatal consequences.

3. *Animals.*] Wolves are almost the only beasts of prey in this kingdom; the breed of which, on account of the number of mountains have never been totally exterminated. Black cattle, mules and other tame animals common to the European climates are plentiful in Spain. The Spanish sheep are a treasure in themselves, their wool being the finest in the universe; the number of their shepherds is computed to be forty thousand. The Andalusian horses are the most celebrated for beauty of any in Europe. Wild bulls abound in the forests of New Castile, and give the youth an opportunity of displaying their courage and activity before their mistresses as in tilts and tournaments in the romantic days of chivalry. The fights of the cavaliers or bull feasts, a diversion attended with circumstances of uncommon barbarity, and suited only to the taste of the Gothic ages is of Moorish original; it is now happily become obsolete, but was once so prevalent that every town of any note is furnished with a large square or circus for the purpose of exhibiting bull fights; and so fond are they in some places of this diversion that in the smallest villages they will procure a cow or ox by subscription and fight them, riding on asses, if they cannot procure horses. It would be well if other countries were clear of the inhuman practice of torturing this very useful part of the creation. With equal cruelty, though with less hardness and courage, the poor bull is baited and torn in our islands. Fowls, wild and tame, and the various species of those animals called game, are excellent and numerous in Spain, and the Spanish seas and rivers are plentifully stocked with fish.

4. *Fossils and Springs.*] Spain abounds in metals and minerals, but its ancient celebrity for gold and silver mines is now no more; whether their veins were exhausted, or the natives too indolent to work them, is altogether uncertain. Most of their mountains have mines of quicksilver, copper, lead and iron, which last is esteemed next to that of Damascus. Great quantities of marble, jasper, alabaster, jet, agate, cornelian, garnets; and sometimes diamonds, emeralds and amethysts are found here. They have likewise a great plenty of calamine, sulphur, allum and other minerals.

The medicinal waters of Spain are little known, they are frequent in Granada, Seville and Cordova, but not much resorted to.

5. *Mountains.*] The mountains of Spain are numerous; the most remarkable are the Pyrenean, on the frontiers of France; they are near two hundred miles long, and have only five narrow passages
over

over them; the Cantabrian mountains appear to be a continuation of the Pyrenees, and reach the Atlantic ocean south of Cape Finisterre: Mount Calpe, now called the Hill of Gibraltar, and anciently one of the pillars of Hercules, is sufficiently known. But of all others Montserrat is most extraordinary; at a distance the mountain appears like an infinite number of rocks cut into a conical form, and piled upon one another to a prodigious height; on a nearer view, each cone composes a mountain of itself, and the whole occupies an extent of about fourteen miles in circumference. As it is in form dissimilar to any other mountain, so it is unconnected with any. It stands on a vast plain about thirty miles from Barcelona, and has been thought to be so admirably adapted for contemplation and retirement, that for many ages it has been the habitation of monks and hermits, who vow never to forsake it. On this mountain stands a convent to which pilgrims resort from the most distant Romish countries. The poor who call there are fed three days gratis, and the sick relieved from the hospital. On particular festivals several thousand persons arrive in a day, who pay according to their circumstances for what accommodations the convent can afford. A number of hermitages are cut out on different parts of the mountain, all of which have their little chapels and are generally furnished with small gardens. The hermits have an annual meeting, when they receive their sacrament from the hands of the mountain vicar, and afterwards dine together; but at other times they live in a very reclusive and solitary manner, perform various penances, and adhere to the most rigid rules of abstinence. They are prohibited from keeping any living creature within their walls, that their attention may not be diverted from divine contemplation by the exercise of any earthly affection.

6. *Rivers, Lakes.*] The principal rivers in Spain are the Duero, the Tajo or Tagus of the ancients, famed for its golden sands in their days; the Guadiana, which in its course runs a considerable way under ground and again emerges; the Guadalquivir or Turio; and the Ebro. The Tinto, however, is the most remarkable, its waters are of a topaz hue, and as they glide along they indurate the sand and petrify in a surprising manner. Not a plant grows on its banks, no kind of verdure is seen within its reach, nor have any fish ever been found in its stream. Every species of animals, except goats, refuse to drink of it, though its water does not appear to contain any noxious quality, and is much celebrated for destroying worms in cattle. These singular properties, however, are entirely lost before it reaches the sea, by the influx of various rivulets, a considerable distance from its mouth.

The lakes in Spain, particularly that of Benevente, abound with various excellent species of fish; and the water of a lake near Antequera, on being evaporated by the heat of the sun, leaves a crust of salt.

7. *Commerce,*

7. *Commerce, Manufacture.*] Such immense treasure is derived from Spanish America, that this nation makes gold and silver the chief branches of its imports and exports. Cochineal, also indigo, cacao, sugar, tobacco, logwood, and every other valuable articles which that quarter of the world produces, form the cargoes of the homeward-bound galleons or flotas. The chief manufactures of Spain are silk, wool, iron, copper and other hardwares; but such is the general indolence and inactivity of the natives, that they are totally unable to supply their colonies with the commodities of their own manufactures; the English, French, Dutch, and several other nations carry on this lucrative but contraband trade in Spanish bottoms, and sheltered under the name of Spanish factors; Cadiz is the chief emporium for this species of commerce; to this place the bullion of America is imported and from hence exported to the other nations of Europe.

8. *Curiosities natural and artificial.*] The principal natural curiosities of Spain have been told in the description of its mountains and waters. At Algeira is a very deep and extensive cavern, with curious chrySTALLIZATIONS or petrefactions; but the echo in this cave is the most amazing, travellers of veracity have affirmed that the report of a pistol will be reverberated in it for the space of seven minutes.

In several parts of Spain are the remains of Roman and Moorish antiquities. Near the city of Salamanca are the ruins of a Roman way; near Segovia is a grand aqueduct erected by Trajan, which extends over a deep valley between two hills, and is supported by a double row of a hundred and seventy-two arches; at Toledo are the remains of an old Roman theatre; and at Cordova is an edifice which was formerly a mosque, but is now converted into a Spanish congregation house, and is said to be one of the wonders of the world, it is six hundred feet in length, five hundred in breadth, and of a proportionate height; the roof, which is amazingly bold and lofty, is supported by three hundred and fifty pillars of fine marble in ten rows, forming eleven aisles, in which are three hundred and sixty six altars and twenty-four gates, every part being enriched and adorned with the most grand and costly ornaments: at Granada is to be seen great part of a most magnificent palace belonging to the Moorish kings, the inside is overlaid with jasper and porphyry, and the walls contain many Arabic inscriptions; the whole edifice is executed in the Gothic taste.

9. *Religion, Language.*] The profession of the church of Rome is the national establishment of Spain. The horrors of the inquisition blacken the annals of this country; but by a late edict its severities have been considerably moderated.

The Spanish language, except in the terminations and some exotic words introduced into it by the Moors and Goths, bears a strong affinity to the Latin, and is one of the most lofty and expressive tongues in Europe.

10. *Schools, Literati, Artists.*] Besides several academies, there are twenty-four universities in Spain, the chief of which is Salamanca, founded by Alphonfus King of Leon, in the year 1200, containing twenty-one colleges, some of them magnificently beautiful, where the sons of their principal nobility are sent for their education. The other universities, which contain nothing very remarkable, are as follow: Seville, Granada, Compostella, Toledo, Valladolid, Alcala, Siguenza, Valencia, Lerida, Huesca, Saragossa, Tortosa, Oñuna, Onata, Candia, Barcelona, Murcia, Taragona, Baeza, Avila, Oriuela, Palencia and Oviedo.

The Spaniards, at a very early period, cultivated learning; and after the Saracens had settled in this kingdom, they introduced into it their language, religion and literature, and the Eastern stile of composition was generally adopted. At that time the attachment to oriental literature was so great, that it entirely superseded the Roman; and many natives of Spain could write Arabic with the utmost purity, though there was scarcely a man who understood Latin. The Spanish Jews, about that period, were distinguished by their literary abilities; and, under the sanction of government, they established schools at Seville, Granada and Toledo, where they taught the Hebrew tongue, and other branches of learning, with singular success and approbation.

Among the literati of Spain we may reckon the Trobadores, whom the Spanish writers place as high as the twelfth and thirteenth century, when the Provençal and Galician dialects were generally prevalent. The fourteenth and fifteenth centuries produced several learned men and celebrated poets; particularly the Marquis of Villena, Juan de Mena, Juan de la Encina, Boscan, Ercilla and Villegas; Isidore, Ximenes, Calderoni, Lopez de Vega, Cervantes, Tostatus, Herrera, De Solis and Feyjoo, are also celebrated for erudition or parts.

The palaces of Spain, particularly the Escorial, and other public buildings, shew the Spaniards to have been eminent as architects and sculptors; their pictures also shew the excellence of their painters. Among the most eminent of their artists are Velasquez, Murillo, Rebeira and Claudio Coello, and the names of many others are absolutely unknown.

11. *History, Government.*] Spain, the ancient Iberia or Hesperia, was at an early period in the hands of the Carthaginians, and continued so till the Romans dispossessed them of all that they held in this country. It continued a Roman province till the destruction of that empire, when it was seized by the Goths, Vandals, Alans and Suevi; and from hence the Vandals passed over into Africa. In 711, the Saracens from Africa invaded Spain and over-run the whole country. In 718, Pelayo began to recover part of Spain from the Saracens or Moors; others of the Spaniards followed his example, every general setting himself up for a sovereign, till after many wars and mutual conquests, the separate interests were united

united by the marriage of Isabella Queen of Castile to Ferdinand King of Arragon in 1479, and finally the Moors and Jews, amounting to 170,000 families, were expelled the kingdom. The constitution of Spain is the most despotic monarchy.

S E C T I O N XVII.

PORTUGAL.

Portugal is bounded on the north and the east by the kingdom of Spain; on the south and west by the Atlantic ocean. It extends from thirty-six deg. fifty min. to forty-three deg. N. lat. and from seven to ten deg. W. long.

1. *Divisions.*] This kingdom is usually divided into three parts, viz. the northern, middle and southern provinces.

	Provinces.	Chief Towns.
The North division contains	Entre Minho.	Braga.
	Douro.	Oporto, Viana.
	Tras los Montes.	Braganza.
The Middle division contains	Beira.	Miranda, Villa Real.
	Estremadura.	Lisbon.
	Entre Tajo.	St. Ubes, Leira.
The South division contains	Alentejo, or Guadiana.	Ebora or Evora.
	Algarva.	Portalegre, Elvas.
		Bira.
		Faro, Tavora Silves, Lagos.

2. *Climate, Soil and Produce.*] The climate of Portugal is in general much more temperate than that of Spain, because of its vicinity to the sea; and the air of Lisbon in particular is esteemed so gentle and salubrious, that consumptive patients from the most distant European countries frequently try it as their last resource. But though the temperature of the climate be superior to that of Spain, the soil is by no means so fertile, which obliges the Portuguese to import the greatest part of their corn. The fruits are similar to those of Spain, but their flavour is not quite so delicious.

3. *Animals.*] The coasts of Portugal produce abundance of excellent fish; and the land is equally well stocked with quadrupeds and fowls, both wild and domestic. The mules in this country are extremely serviceable both for draught and carriage; and the horses, though slightly made, are spirited and lively.

4. *Mountains,*

4. *Mountains, Mines and Springs.*] The mountains of Portugal are generally very rocky; the principal are those which divide Algarva from Montejo; those in Tralos Montes, and the rock of Lisbon at the mouth of the Tajo: besides these, there are several less considerable ones, and they abound in all kinds of ores, particularly of silver, copper, tin and iron; but the Portuguese being amply supplied with metals, and particularly gold from their possessions in America and other parts of the globe, no mines are worked in their country. Gems of various kinds, such as Turquoises and Hyacinths, a beautiful species of veined marble, mill-stones, and many curious fossils of the lapidary kind are found in different provinces; and on the hill of Alcantara, in the vicinity of Lisbon, there is a remarkable mine of saltpetre.

Mineral and medicinal springs, both hot and cold, are found in Portugal; one in particular, of the first sort, about forty-five miles from Lisbon, has an hospital built near it for the benefit of the poor.

5. *Rivers, Lakes.*] Next to the Duero, Minho, Tajo and Guadiana, which have been already mentioned, in Spain, are the Mondego, the Tago, (which is the famed Lethe of the ancients) the Sado, the Vaga, the Lusa, the Ave, and the Cavado. There is a number of others of less note; and some authors assert, that the several rivers in the little kingdom of Portugal do not amount to less than five thousand.

On the top of Sierra de Estrella, are two lakes of vast extent, and one of them is of an amazing depth, having never yet been fathomed. Near Roa is one that makes a rumbling noise which may be heard a considerable way off; and in the neighbourhood of the river Mondego is a lake, or rather pool, which is said to absorb every thing that is thrown into it, though of ever so light a nature.

6. *Commerce, Manufactures.*] The Portuguese exchange their wines, fruit, salt and other articles for foreign manufactures, especially those of the English. They fabricate some linen, woollen and coarse silks, and are celebrated for candying and preserving fruit.

Their colonies in Brasil yield vast quantities of gold, silver, diamonds, sugar, brazil and other woods for dyeing, tobacco, gums and drugs. Their settlements on the east and west coasts of Africa are very extensive, from whence they also import gold, and they carry on a considerable trade with the East Indies.

7. *Curiosities.*] The remains of some Moorish castles, the Roman bridge and aqueduct at Coimbra, the walls of Santarém, which are likewise supposed to be the works of the Romans. These and the waters, already mentioned, form the principal curiosities of this kingdom.

8. *Profession, Language.*] The Portuguese are of the church of Rome. John III. introduced the inquisition into this country, and
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impious and inhuman as this tribunal is, it has been called the Holy Office, and its festivals or cruel burnings Auto de Fe, or the Act of Faith. The power of the inquisition, however, is now taken out of the hands of the ecclesiasticks, but it is converted into a state trap for the benefit of the crown.

The Portuguese language differs from that of Spain, only provincially, with the addition of some words originally borrowed from other nations; and is esteemed strong, energetic and expressive.

9. *Learning.*] Useful learning and liberal science are banished from Portugal by the decretals of their church; and though there are universities at Coimbra and Evora, and several academies of royal institution, all attempts to diffuse useful knowledge are defeated by the tyrannic sway of superstition, which brands with the name of heresy even the improvements in natural knowledge, as the doctrines of Newton, Galileo, and other celebrated philosophers; yet the ancestors of the present Portuguese were certainly possessed of more knowledge, with respect to astronomy, geography and navigation, than all the world besides about the middle of the sixteenth century; but we hardly meet with one name transmitted to posterity as eminent for literary abilities, except the poetic Camoens, author of the *Lusiad*, who was himself a great adventurer and voyager.

10. *History, Government.*] The ancient inhabitants of this country were called Lusitani, and underwent from the Romans, Gothic nations and Moors, the revolutions of Spain. About 1146, Portugal became a distinct kingdom under Alonzo. Upon the death of Henry King of Portugal in 1580, Philip II. of Spain seized upon this country; but in 1640 the Duke of Braganza recovered it from the Spaniards, and was crowned King by the name of John IV. Portugal has been independent of Spain ever since. Its constitution is absolute monarchy.

SECTION XVIII.

ITALY.

Italy, including Sicily, lies between thirty-seven and forty-seven deg. N. latitude, and between seven and nineteen deg. E. longitude. Towards the east, south and west, it is washed by the Adriatic and Mediterranean seas; and on the North it is separated from the rest of Europe by the Alps.

1. *Divisions.*] The Italian states, dissimilar to those of Holland and Switzerland, have distinct forms of government, trade and interests;

interests; they are not cemented by any political confederacy, to which every member is accountable.

*Countries.**Chief Towns.**The King of SARDINIA holds*

PIEDMONT.	Turin, Pignerol, Carignan, Verceil, Masseran, Ivrea, Asti, Susa, Saluzzo, Coni, Pragelas or Cluson, Nice, Tende, Aouste.
SAVOY.	Chamberry, Montmelian, Annacy, Tonor or Thonon, Mouftriers, St. John de Maurienne, Bonneville.
MONTFERRAT.	Casal, Alby, Aquis.
Part of MILAN.	Tortona, Alexandria, Laumello.
SARDINIA I.	Cagliari, Oristagni, Sassari, Castel Aragonese.

The Dominions of the King of NAPLES are

NAPLES.	Naples, Capua, Gaeto, Benevento, Salerno, Bojano, Cerenza, Cosenza, Rhegio, Aquilla, Chieti, Manfredonia, Bari, Otranto, Brundisi, Tarento.
SICILY.	Palermo, Messina, Catania, Syracuse, Noto.
ISLANDS of	Lipari, Strombulo, Rotte, Panaria, Elicusa, Capri, Ischia, Ponza, Pianosa, &c.

The House of Austria possesses

MILANESE.	Milan, Pavia, Novara, Como, Lodi, Cremona.
MANTUA.	Mantua.
TUSCANY.	Florence, Sienna, Pisa, Leghorn, Piombino. In Tuscany, Lucca is a republic, and Massa Carrara a principality; and the coast del Presidii, of which the capital is Orbitello, is subject to the King of Naples.
The Duke of PARMA'S Territories.	Parma, Placentia, Guastalla, Castiglione, Luzzara.
GENOESE Territories.	Genoa, Savona, Vado, Noli, Final, Albenga, St. Remo, Ventimiglia, Monaco, Rapallo, Levigna, Spezia.
ONEGLIA	Is subject to the King of Sardinia.
The Duke of MODENA'S Territories.	Modena, Mirandola, Rhegio, Borsello, Carpi.
VENETIAN Territories.	Venice, Padua, Verona, Brescia, Crema, Bergamo, Vincenza, Rovigno, Treviso, Belluno, Aquileia, Udina, Capo de Istria.

*Countries.**Chief Towns.*

POPE'S DOMINIONS. Rome, Tivoli, Fregate, Ostia, Albano, Viterbo, Civita Vecchia, Bracciano, Castro, Orvieto, Aquapendente, Spoleto, Narni, Terni, Perugia, Ancona, Loreto, Urbino, Pesaro, Semigalia, Ravenna, Rimini, Bologna, Ferrara, Comachia, [St. Marino, a republic.]

The FRENCH King holds

CORSICA I. Bastia, Bonifacio.

The Knights of St. John of Jerusalem possess

MALTA I. Malta or Valetta.

2. *Climate, Soil.*] Italy is of a kindly soil and climate, and produces not only the necessaries but comforts of life in great abundance; each district possessing some peculiar excellency, and affording some valued commodity: however, the choicest wines, fruits and oil, are among the most general productions; but notwithstanding this abundance, the natives in general are far from being happy in their circumstances, extensive tracts of land lying uncultivated, and the air itself being considerably affected by the nature of the soil. The Campagna di Roma, in particular, which the ancient Romans esteemed peculiarly salubrious, is now become almost pestilential, from the decrease of population and the relaxation of industry. The air, however, in the northern parts of the country, particularly among the Alps and in their vicinity, is cold and wholesome; and in other parts, the sea-breezes refresh the natives and mitigate that intenseness of heat which might be expected from its southern situation.

3. *Animals, Vegetables.*] The animals found in Italy are the same in general with those of France, Switzerland, and Germany.

The vegetables are corn, rice, olives, grapes, oranges, lemons, citrons, pomegranates, almonds, mulberries, figs, peaches, nectarines, apricots, pears, apples, filberds, chefnuts, &c. Some of the mountains are covered with aromatic herbs, trees, shrubs and evergreens; as thyme, lavender, laurel, bays, wild olive trees, tamarins, juniper, oaks and pines. Calabria, in Naples, produces a sort of ash, from which flows that well known drug, called manna; the cork tree is also a native of Italy; and truffles grow here naturally in as great plenty as mushrooms with us.

4. *Mountains, Mines, Springs.*] The most considerable mountains in this country are the Alps and Apennines; the other mountains are Mons Massicus, Monte-Nova, Masso Monte, Garo, Monte Barbaro, St. Angelo, and the volcanoes of Ætna, Vesuvius and Stromboli.

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Many of the mountains produce emeralds, jasper, agate, porphyry, lapis lazuli, and other valuable stones. Mines of iron and copper have been discovered in a few places; and a mill for forging these metals has been erected near Tivoli, in the kingdom of Naples. Some of the Italian islands are said to contain mines of gold, silver, lead, iron, sulphur and allum, though in general they are much neglected, and curious chrytals and corals are found on different parts of the coast; beautiful marble of almost every species is also very plenty.

Mineral springs of various qualities abound in different parts of Italy.

5. *Rivers, Lakes.*] The principal rivers of Italy are the Po, the Adige, the Arno and the Tiber.

The principal Italian lakes are the Maggiore, Lugano, Como, Isco and Garda, in the North; and the Perugia or Thrasimene, Bracciana, Terni and Celano, in the interior parts.

6. *Commerce, Manufactures.*] Italy was long the most commercial nation of Europe; its manufactures are various, and its trade in general may yet be pronounced to be in a very flourishing condition. It exports a great variety of the choicest wines and fruits, but silks are the greatest articles of its commerce. Very capital annual fairs are held at Alessandria, Cremona, Bergamo, Brescia, Verona, Reggio, and Placentia; to which foreigners as well as natives of each of the above places resort.

7. *Curiosities.*] Italy affords an ample field of entertainment for every description of curiosi.

The various reliques which superstition accounts of inestimable worth abound in this land.

The burning mountains, the variously impregnated waters, the mephitic air of the Grotto Del Cani, into which the poor dogs are forced, where they suffer a temporary death for the entertainment of passengers: these, and a variety of other natural curiosities, induce the attention and researches of the philosopher.

The artist finds here the most beautiful and elegant models both ancient and modern, the architecture, the medals, the statuary, the paintings fill him with enthusiasm.

But chiefly the historian and the antiquary, in this classic land, find a profusion of their precious remains of antiquity. Not a mountain rears its head, nor a river glides along, but has been celebrated by the ancients in song; ruins of former magnificence lie scattered over the grounds; and spots heretofore rendered desolate and desert from the ravages of war, are at this day still more solitary and waste from indolence and monastic vows.

Through every state of Italy the most superb remains of architecture may be traced, which indicate the grandeur of the ancient Romans. The Appian, Flaminian and Æmilian roads, the first two hundred, the second one hundred and thirty, and the third fifty miles in length, are still in many places entire. Magnificent
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remains of columns, porticoes, amphitheatres, circi, villas, temples, palaces, reservoirs, bridges and triumphal arches, present themselves to the inspection of the curious traveller; and with the stupendous subterranean cloacæ and catacombs in the vicinities of Naples and Rome furnish monuments of the extreme skill and perfecting industry of the ancient inhabitants of this country.

But so indifferent are the modern Italians in general about objects of antiquity, that the ancient city of Pæstum or Posidonia in the kingdom of Naples was accidentally discovered by a painter's apprentice within the present century. Inexhaustible mines of curiosities, however, are daily appearing among the ruins of Herculaneum, a city lying between Naples and Mount Vesuvius, which was nearly destroyed by an earthquake in the reign of Nero; and in the first year of that of Titus totally overwhelmed by a stream of lava from the neighbouring volcano, which in its progress filled up the streets, and overtopped the houses in some places to the height of sixty-eight feet, and in others one hundred and ten. Pompeia was also involved in the same destruction. In these subterranean cities, entire streets, shops and houses are discovered, and temples, statues, busts, pillars, paintings, furniture, and various utensils; a prodigious number of manuscripts also, which, however, it takes a tedious process to unroll, but in which it is expected many of the lost works of the ancients may be restored. From the very few skeletons found in this city it appears that the inhabitants had generally escaped.

8. *Religion, Language.*] The Romish profession is universally established throughout Italy: however, the inquisition is very circumscribed, and persons of other persuasions live unmolested here. Even Jews and Mahometans may live peaceably, if they do not scoff at or insult the religion of the country. The government of the church of Rome is centered in the pope and cardinals; the established number of the latter is seventy, but it is seldom complete. The conclave is an assembly of all the cardinals on urgent occasions, particularly at the election of a pope; the consistory an assembly of the pope and cardinals.

The Italian language is originally derived from the Latin, with the intermixture of words from the Goths, Huns, Vandals, and other conquerors of Rome, and is remarkable for its smoothness; almost every separate state however, and indeed sometimes the separate streets of the same city have different dialects; but the unwearied pains taken by the literary societies of this country may probably at last fix the Italian into a standard language. The Tuscan stile and manner of composition seem at present in the highest estimation.

9. *Literati, Artists, Schools.*] In Italy learning appears to be now at a very low ebb, though formerly it produced several great geniuses. Galileo, Torricelli, Malpighi, Borelli, Strada, Fra. Paoli, Guicciardini, Bentivolio, Davila, Machiavel, Tasso, Ariosto,

to, Sannazarius, Fracastorius, Bembo, Vida and Metastasio, were all natives of this country; as were Cicero, Virgil, Horace, Salust, Livy, Tacitus, Lucretius, Julius Cæsar, Plautus, Terence, &c. in antiquity.

The painters, sculptors and architects of Italy have hardly been equalled by those of any other nation. Raphael, Titian, Julio Romano, Correggio, Caraccio, Veronese, and many more have excelled in the first of these arts, as Michael Angelo has in all the three. Bramante, Bernini, with several more of their countrymen, carried sculpture and architecture to a great degree of perfection; and the antiques of this country may serve to shew the superior excellence of the ancients in the fine arts.

There is in Italy a multiplicity of academies and literary societies, besides the universities of Rome, Venice, Florence, Mantua, Padua, Parma, Verona, Milan, Pavia, Bologna, Ferrara, Naples, Pisa, Salerno and Perugia.

[*10. History, Government.*] Italy was inhabited in antiquity successively by the Umbri, the Pelasgi and the Etruscans. The imperial Rome, founded about 627 before the christian era, after many revolutions of government, and many civil and foreign wars, had on the coming of our Saviour extended its empire over the greatest part of the known world; but the Roman power declined greatly in the western part of the world upon the removal of the seat of empire to Constantinople; and accordingly the imperial city, from the year 410, through some centuries, underwent the revolutions and ravages of the Goths, Vandals, &c. in common with the other western nations of Europe. In 726 Rome, in the pontificate of Gregory II. revolted from the Greek emperors. In 800 the senate and people of Rome acknowledged Charlemagne as emperor of the west; and he surrendered the city and duchy of Rome to the Pope, reserving the sovereignty to himself as emperor of the Romans. Under the popes, as temporal princes, Rome and its territories remain to this day. It would take volumes to explain the different forms of government established in Italy; it is in the different states, republican, aristocratical, monarchical or ecclesiastical.

S E C T I O N XX.

TURKEY IN EUROPE.

The Grand Seignior's dominions are not confined to one quarter of the world, some of them being situated in Europe, some in Asia and others in Africa.

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European Turkey is situated between seventeen and forty deg. of east longitude, and between thirty-seven and forty-nine deg. north latitude. It is bounded by Russia, Poland and Sclavonia on the north, by Circassia, the Black Sea, the Propontis, Hellespont and Archipelago on the east, by the Mediterranean on the south, and by the same sea, together with the Venetian and Austrian territories on the west.

1. *Divisions.*] Turkey in Europe, lying in the most genial climates, contains some of the most fertile provinces in the world. It is divided as in the following table.

*Provinces.**Chief Towns.*

CRIM and LITTLE

TARTARY,
BUDZIAC TARTARY,

BESSARABIA,

MOLDAVIA,

WALLACHIA,

BULGARIA,

SERVIA,

BOSNIA,

ROMANIA,

MACEDONIA,

JANNA,

LIVADIA,

EPIRUS,

ALBANIA,

DALMATIA,

RAGUSA,

CORINTHIA,

ARGOS,

SPARTA,

OLYMPIA,

ARCADIA,

ELIS.

Precop, Bachiseria, Kassa.

Oczakow.

Bender, Belgorod.

Jazy, Chotzim.

Tergovisc.

Widin, Nicopoli, Silistria, Scopia.

Belgrade, Semendria, Nissa.

Seraio.

Constantinople, Adrianople, Philippopoli.

Strymon, Contessa.

Salonichi.

Athens, Thebes, Lepanto.

Chimæra, Butrinto, Scodra.

Durazzo, Dulcigno, Drino.

Zara, Narenza.

Ragusa, a Republick.

Corinth.

Argos, Napoli de Romania.

Mistra, formerly Lacedemon.

Olympia or Longinica.

Modon, Coron.

Patras, Elis or Belvidere.

The islands of European Turkey are Negropont, Lemnos, Tenedos, Scyros, Lesbos or Myteline, Scio or Chios, Patmos, the Cyclades, Dalos, Paros, Cerigo or Cytherea, Santorin, Rhodes, Candia, Cyprus, and the islands in the Ionian sea, viz. Sapienza, Strivali, Zante, Cephalonia, Santa Maura, Corfu, and Isola del Compace, the ancient Ithaca, famous for being the kingdom of Ulysses, and several others of inferior note.

2. *Climate, Soil.*] The air of Turkey in Europe is naturally extremely salubrious and friendly to the human constitution, but from the want of cultivation, and the indolence and uncleanness of the turks in their manner of living, the plague frequently makes dreadful ravages; though the Mahometan doctrine of fatality and the prevalence of custom render the natives in general very unconcerned about it. The soil being universally fertile, all the neces-

faries, and many of the luxuries of life are equally good and cheap. The seasons are regular and pleasant, and no country in the world abounds more in pure and salubrious waters, which invite the Turks to frequent ablutions, as well on account of pleasure as religion.

3. *Vegetables, Minerals and Animals.*] Where the smallest degree of industry has been exerted the soil is prolific to excess; and exclusive of corn, wine, oil, garden and pot-herbs in the utmost abundance, this country produces in amazing perfection oranges, lemons, citrons, pomegranates, figs, almonds, coffee, olives and cotton. Besides these valuable productions it affords many drugs not common in other European countries; nor are the bowels of the earth deficient in metals and minerals. At Potystoli, in Macedonia, there are mines of gold and silver; and Greece affords iron, lead, the most beautiful marbles, allum and sulphur.

Thessalian or Turkish horses are both beautiful and serviceable, and the black cattle, especially in Greece, are large and excellent. The goats are extremely valuable to the natives, both on account of their milk and flesh. The large eagles which abound in the vicinity of Badadagi furnish the best arrow-feathers for the Turkish and tartarian archers, and they are accordingly sold at an immense price. Partridges are very plentiful, as well as most other European fowls, and quadrupeds both wild and domestic. The rivers abound in fish, but the Mahometans seem by no means partial to the use of animal food.

4. *Mountains, Waters.*] The mountains in this country are some of the most fruitful and celebrated of any in Europe. Mount Athos stands on a peninsula running into the Aegean Sea; the Pindus and Olympus, celebrated in Grecian fable, divide Thessaly from Epirus. Parnassus, famous in poetry for being consecrated to the muses is well known, as well as Mount Hermus; but most of the other mountains and indeed some of these have changed their names.

The principal seas are the Euxine or Black Sea, the Palus Mæotis or sea of Asoph, the sea of Marmora, the Archipelago, the Ionian Sea and the Levant; the straits of the Hellespont and Bosphorus are famous in modern as well as in ancient history.

The chief rivers in European Turkey are the Danube, the Save, the Neister, the Dnieper or Boristhenes, and the Don or Tanais, with several others, which, though of inferior consideration, have been highly celebrated by poets and historians.

The most remarkable lakes are Lago di Scutari, in the province of Albania, Lago di Nave and Lago di Holti. The Stymphalis, in the province of Morea, was famous for its harpies and ravenous birds; and the Peneus for being the source of the River Styx, celebrated by the ancient poets.

Mineral springs and baths both hot and cold are numerous in Turkey.

5. Trade,

5. *Trade.*] Commerce and manufactures are but little regarded among the turks. Tyre, Sidon and Alexandria, with all those countries which were in possession of the commerce of the ancient world, are now enveloped in indolence and ignorance. The turks command the navigation of the Red Sea, which opens a communication to the Indian ocean; but they do not avail themselves of this opportunity of opening a trade with the wealthy nations of the east; and their capital Constantinople is situated on a narrow strait which separates Europe from Asia, rendering an intercourse with the other parts of the world not only practicable but easy, yet the Mahometans, disregarding these combined local advantages, and chewing of opium to the ruin of their constitutions, dose away life in stupid inactivity.

This empire produces all the commodities necessary for the most extended plan of industry and commerce. The Turks, however, alike averse to mental and corporeal exertions, content themselves with manufacturing cottons, carpets, leather and soap; but export the most valuable of their commodities, such as silks, drugs and dying stuffs in their natural state, without improving their value by labour. The internal commerce of the empire, which is extremely contracted, is principally carried on by Jews and Armenians. In their traffic with the rest of Europe the Turks are entirely passive in the navigation; the English, French, Dutch and other maritime powers resorting thither with their commodities, and bringing back those of Turkey in their own bottoms; indeed the Turks themselves are possessed only of a few coasting vessels, which never attempt any distant voyages.

6. *Curiosities.*] European Turkey, particularly Greece, may be considered as the storehouse of antiquities, and may as well as Italy be called classic ground; here the mountains and rivers, as well as the magnificent remains of the works of the ancients, claim, from their celerity in Grecian song, the attention of the antiquary.

The temple of Minerva at Athens, the temple of the eight winds, and the lantern of Demosthenes, are still entire. The ruins of Neptune's temple, and the theatre where the Isthmean games were celebrated are still visible on the isthmus of Corinth; as are the ruins of the temple of Apollo at Castri. On the south of Mount Parnassus are some marble steps that descend to a running water, supposed to be the celebrated Castalian spring; and the niches in the rock where statues were formerly placed are still discernible; and in Livadia, the ancient Boeotia, the famous oracular cave of Jupiter Trophonius, cut out of a rock.

7. *Language, Learning.*] The radical languages of this empire are the Slavonian, the Greek, the Arabic, and the Syriac; all which are in a manner blended in the present dialect.

Learning is at a very low ebb among the Turks, who in general express the most sovereign contempt for it. Greece was once the nursery of genius, arts and sciences, and produced in sculpture, Phidias,

Phidias, Polycleetus, Myron, Lysippus, Praxiteles and Scopas; in painting Apollodorus, Zeuxis, Parrhasius, Pamphilus, Timanthes, Apelles, Aristides and Protogenes; in poetry Homer, Eschylus, Sophocles, and Euripides; in prose Herodotus, Xenophon and Isocrates, Thucydides and Demosthenes; and in the more severe exercises of mathematicks and philosophy Pythagoras, Euclid, Archimedes, Socrates, Plato, Aristotle and Xenophon. This ancient seat of learning now produces a numerous tribe of bishops, priests and monks, but in general they are as ignorant as the Turks themselves, whose education seldom extends farther than the reading of their native language and the Koran. There are however some schools, colleges and academies both of Turks, and Jews and Greeks. Some years ago a printing house was opened at Constantinople, where books of all kinds were allowed to be printed, except on matters of religion; and even some of the Turks understand so much of astronomy, as enables them to calculate an eclipse; but the number is very small, and they are generally regarded as persons of extraordinary sagacity.

8. *Profession.*] The Turks universally agree in the general belief of Mahomer's divine legation, but are divided into as many different sects as the professors of christianity. The chief ecclesiastic, who is called the Mufti (signifying an expounder of the law) is of such dignity, that whenever he comes into court the Emperor himself rises from his seat and advances to meet him.

On pecuniary conditions other professions are tolerated in Turkey, and Jews, Greeks, Armenians, with other professions of christianity, are numerous.

9. *History.*] In European Turkey is included the place of the ancient states of Macedon and Greece. These celebrated people, their politics and revolutions, were on the commencement of the christian æra lost in the general conquests of the Romans. To the last remains of the Greek or Eastern Roman empire the Turks put a final period by the conquest of Constantinople in 1453.

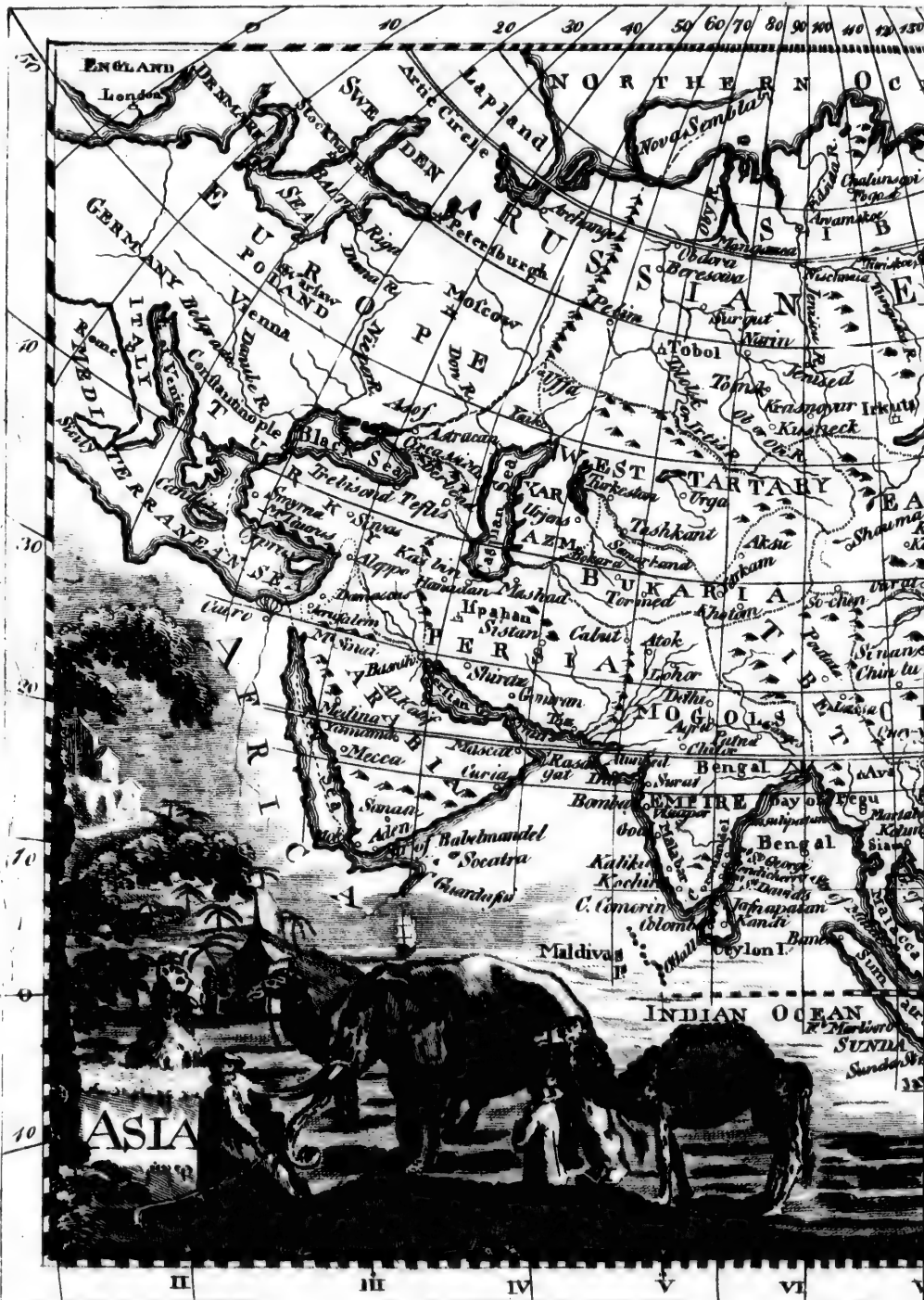
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P A R T VII.

D E S C R I P T I O N

O F

A S I A.

A S I A is remarkable for being the principal scene of scripture history : it was here the human race first had their beginning, and after the deluge it became a second time the nursery of mankind ; it was here the sciences and arts had their origin ; here the first empires and kingdoms were founded, empires now forgotten, but which in their day lorded it over the rest of the world. And here events were accomplished of infinitely more importance : it was in Asia our blessed Saviour was born, lived and was crucified ; and in Asia churches were first gathered in his name.

This distinguished quarter of the globe is remarkable for the serenity of its air, and the richness and fertility of its soil, which brings forth the most delicious fruits and fragrant plants, spices, gums and balsams in exuberant profusion. In the description of the patriarch Abraham sitting in the tent door in the heat of the day, and lifting up his eyes and looking, there seems a natural representation of the manners of the Asiatics at this day : rest they love, and in this they indulge ; such are the manners of the southern inhabitants. Those on the north are more hardy and alert. The native of Siberia wrapped up in furs, and drawn by his dogs over immeasurable tracts of snow, and the roving tartar on his fleet and active steed, scouring along the desert, are in manners and way of life a contrast to those who recline at their ease, under the cooling verdure of the south, or riding in state on the towering elephant, by the spreading umbrella evade the scorching rays of the sun.

Various forms of idolatry and the doctrines of Mahomet spread over this extensive continent. Its languages are the Arabic, Persian, Malayan, Chinese, Japanese, Tartarian, Russian and Turkish.

Asia is bounded on the west by the Red Sea, the Mediterranean or Levant, the Archipelago, the Black Sea and Europe ; on the north by the Icy Sea ; on the east and south by the Pacific and Indian Oceans. It is situated between twenty-five and one hundred and eighty deg. of east longitude, extending from the equator to the frigid Zone, and is about four thousand eight hundred miles in length, and four thousand three hundred in breadth. It contains the following nations.

Tartary

Countries.	Length-Breadth		Capitals.	Latitude.	Longitude from Greenwich.	
	miles	miles			in Degrees.	in Time.
				D. M. S.	D. M. S.	H. M. S.
Independent	Bounds		Samarcand	39 50 0 N.	69 0 — E.	4 36 — bef.
Mogulean	undefined,		Tibet	37 — — N.	8 — — E.	5 40 — bef.
Chinese	and as va-		Chynian	48 — — N.	12 — — E.	8 4 — bef.
Russian	riable as		Tobolski	58 12 18 N.	68 12 45 E.	4 38 51 bef.
	the Tartars					
	are excu-					
	sive.					
Persia	1300	1100	Isfahan	32 25 0 N.	52 50 0 E.	3 31 20 bef.
India	2000	1000	Siam or Pegu	14 18 0 N.	100 50 0 E.	6 43 20 bef.
Moguls	2000	1500	Delhi	28 20 — N.	79 25 — E.	5 16 — bef.
Emp.						
China	1440	1260	Pekin	39 54 30 N.	116 24 15 E.	7 45 37 bef.

Turkish Empire in Asia includes the following.

Georgia	210	140	Teflis	43 0 — N.	46 15 — E.	3 10 — bef.
Turcomania	360	300	Erzerum	39 56 35 N.	48 35 45 E.	3 14 23 bef.
Diabec						
or Mefo-	560	310	Bagdat	33 20 0 N.	43 46 30 E.	2 55 6 bef.
potamia						
Natolia	750	308	Bursa or Smyrna	38 18 7 N.	35 20 0 E.	2 21 20 bef.
Palestine	210	90	Jerusalem	31 55 0 N.	27 19 45 E.	1 49 15 bef.
Syria	270	160	Aleppo	35 45 23 N.	37 20 0 E.	2 29 20 bef.
Part of						
Arabia	1300	1200	Mecca	21 45 — N.	40 55 — E.	2 52 — bef.

ASIATIC ISLANDS in the INDIAN and PACIFIC OCEANS.

Names.	Chief Towns.	Claimed by or trading with	Names.	Chief Towns.	Claimed by or trading with
Kurile Islands,	No Town,	Russians.	Gilolo,	Gilolo,	Dutch.
Japan,	Jeddo,	Dutch.	Borneo,	Borneo, Cay-tongee,	Open Trade.
Ladrone Islands,	Guam,	Spaniards.	Sumatra,	Achen, Ben-coolen,	Dutch and English.
Formosa,	Tai ouan fou	Chinese.	Java,	Batavia, Ban-tam,	Dutch.
Philippines,	Manilla,	Spaniards.	Andaman,	Andaman,	Open Trade.
Molucca,	Victoria Fort	Dutch.	Nicobar,	Nicobar,	Open Trade.
Banda,	Lantor,	Dutch.	Candy,	Candy,	Dutch.
Amboyna,	Amboyna,	Dutch.	Maldives,	Caridon,	Open Trade.
Celebes,	Macassar,	Dutch.	Bombay,	Bombay,	English.

New Holland, New Guinea, New Britain, New Ireland, New Hebrides, New Caledonia, New Zealand, are uncolonised; and the Friendly, Society and Sandwich Islands are but late discoveries.

SECTION

SECTION I.

TURKEY IN ASIA.

ASIATIC Turkey is about one thousand miles in length from east to west, and in breadth about eight hundred from its northern extremity to where it mixes with the Arabian Deserts. It has the Black Sea and Circassia on the north; Persia on the east; Arabia and the Levant Sea on the south; and the Archipelago, Hellespont and Propontis on the west, which separate it from Europe. It is situated between the twenty-seventh and forty-fifth deg. east longitude; and between the twenty-eighth and forty-fifth deg. north latitude.

This country was the principal scene of scripture history in antiquity, and, in later times, of those romantic expeditions, the crusades.

1. *Divisions.*] It has been divided as in the following table.

<i>Provinces.</i>	<i>Chief Towns.</i>
EYRACO ARABIC OF CHALDEA.	} Bassora, Bagdat.
DIARBEK OF MESOPOTAMIA.	
TURCOMANIA OF ARMENIA.	} Erzerum, Van.
CURDISTAN OF ASSYRIA.	
GEORGIA, including MENGRELIA, IMARETTA, and Part of CIRCASSIA.	} Amarchia, Gonie. Georgia hath lately claimed Independence, and put itself under the Protection of Russia.
NATOLIA.	
AMASIA.	Bursa, Nici, Smyrna, Ephesus.
ALADULIA.	Amasia, Trapezond, Sinope.
CARAMENIA.	Ajazzo, Marat.
SYRIA with PALESTINE.	Satalia, Teraffo.
	} Aleppo, Antioch, Damascus, Tyre, Sidon, Tripoli, Scanderoon, Jerusalem.

The climate, air, soil, produce, animals, commerce, manufactures, language and profession of religion in this country are much the same as in European Turkey.

2. *Mountains, Minerals, Waters.*] The mountains and rivers of this country are celebrated in the most ancient history; among the former are Olympus, Taurus, Anti-Taurus, Ida, Caucasus, Arrarat, Hermon and Lebanon; of the latter are the Euphrates, the Tigris, the Orontes, the Meander, the Sarabat, the Kara and the Jordan; the lakes are the Gaul-bughaw or Van in Turcomania,

nia, the Afchanea or Acfis near the town of Nice, and the sea of Galilee or lake of Tiberias.

In the different divifions of Afatic Turkey all manner of metals and minerals are found, and almoft every kind of precious ftones, emeralds in particular, of peculiar beauty, luftre and fize. This country alfo abounds with medicinal fprings and baths.

3. *Curiofities.*] If we except the particular fpoats celebrated in ancient hiftory, the curiofities of this country confift chiefly in ancient ruins, efpecially thofe magnificent ones of Balbec and Palmyra. At Jerufalem they pretend to fhew the exact places where the particular actions and fufferings of our Saviour happened, though it is well known that even the city itfelf does not ftand on the fame fpot of ground it did at that period; and the places that have been fignalized or rendered memorable as the fcenes of the moft important events, with whatever enthufiafm they may be reforted to by pilgrims or devotees, the convents, chapels and temples which Monkifh zeal may have erected over them as ornaments, muft in the eye of the philofophic antiquary appear as deformities, and as defpoiling the places of ancient hiftory of their former fimplicity, and contradicting their defcription

4. *Hiftory.*] Afatic Turkey has undergone a part of the moft remarkable revolutions that have happened in the world; for it has all or part of it been in fubjection fucceffively to the Affyrians, Babylonians, Medes, Perfians, Macedonians, Romans, Saracens, Tartars and Turks. Abfolute defpotifm is the conftitution of Turkey.

S E C T I O N II.

TARTARY.

The vaft regions of Tartary, taken in their full extent, ftretch from Mufcovy on the weft to the Pacific Ocean on the eaft; and from the nations of China, India, Perfia and Turkey on the fouth, to the impenetrable frozen regions of the Northern Pole. It lies on the north of the thirtieth deg. north latitude, and extends from fifty to one hundred and ninety deg. eaft longitude. Its grand divifions are Ruffian, Chinefe, Mogulean, and Independent Tartary. The boundaries of this country, which is almoft, or perhaps altogether as extenfive as the whole of Europe, and inhabited by Tartars of many different defcriptions, are but incorrectly defined by geographers, they are often unknown even by the neighbouring nations. The line for inftance that divides Mufcovy from Tartary is not known even to the Ruffians themfelves; the fame may be faid of

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of the boundaries that separate it from China and Persia: The truth is, those parts of the country through which the lines of division pass are very thinly if at all inhabited; they are desert and waste, and therefore of very little value. Its dimensions therefore and divisions are rather involved in obscurity; but geographers have made them as follows; length four thousand miles, breadth two thousand four hundred.

1. *Divisions.*]

<i>Provinces.</i>	<i>Towns.</i>	<i>Provinces.</i>	<i>Towns.</i>
Kamtschatka.	Petropaulouskoi.	Ostiak.	Kortskoi.
Jakutskoi.	Jakutskoi.	Circassian and	Terki.
Bratski.	Bratski.	Astracan Tart ^s .	Astracan.
Thibet and	Poion.	Siberia.	Tobolskoi.
Mongul Tart ^s .	Kudak.	Kalmuc and	Bokharia.
Samoieda.	Mangasia.	Usbec Tart ^s .	Samarcand.

2. *Climate, Soil, Animals.*] The soil of this extensive country varies from spontaneous fertility on its southern confines to where it is stiffened in frigidity on the north and its climate or air, and its animals correspond with the variety.

The mountains, woods and deserts of Tartary abound in various kinds of deer and wild-fowl. Here are likewise wild mules and horses, camels, dromedaries, wild boars, tigers, leopards, goats, foxes, bears, wolves, lynxes, and a variety of other animals; and the rivers and lakes abound both in fish and fowl.

3. *Mountains, Waters.*] The principal mountains are those of Caucasus in Circassia, which extend from Asia Minor through the north part of Persia, as far as the Indies and the burning mountains of Kamtschatka. The mines in Siberia are said to contain gold, silver, iron, copper, lapis lazuli, jasper and loadstones.

The principal rivers are the Wolga, the Oby, the Genefa or Jeniska, the Lena and Argun. The principal lakes are the Baikal, the Kisan and the Kolagal.

4. *Trade.*] The principal articles of commerce with the few Tartars who trade are skins, beavers, drugs and fish. The natives of Astracan, however, carry on a considerable traffick with the Persians in red leather, woollen and linen cloth, &c.; and the court of Russia has sent among them some French refugees and other mechanicks and husbandmen, to instruct them in the culture of vines and mulberry trees, for the establishing a silk manufacture, and the making of wines.

Since the banishment of Swedish and Russian prisoners into Siberia some manufactures have commenced there.

5. *Manners, Language.*] The manners, the professions of religion, and the languages of the Tartars are various. The Manchew language is thought by the Tartars to be the most elegant and copious in the world.

6. *Curiosities.*] In some of the deserts of Tartary almost inaccessible, some spacious edifices have been discovered almost covered
with

with the sand, and in these have been found urns, lamps, statues, armour, trappings for horses and elephants, and manuscripts some thousands of volumes. These may shew that Tartary has not always been unacquainted with sciences and arts. Zinghis Khan and Tamerlane, those dreadful ravagers of the earth, and destroyers of the human race, and their early descendants, were famous for their learning. Bokharia and the neighbouring provinces then formed the seat of literature, politeness and luxury.

7. *History.*] But little is known of the state of Tartary in antiquity when it was called by the name of Scythia. In the beginning of the thirteenth century Jenghis Khan, of the tribe of the Mungls in Mogulestan, carried the ravages of war through almost all the countries of the east; and after him Tamerlane, in the latter end of the fourteenth century, spread his conquests over a principal part of Asia.

SECTION III.

CHINA.

The great empire of China lies on the eastern borders of the continent of Asia, and is divided from Chinese Tartary on the north by a prodigious wall, and in some places by inaccessible mountains; on the east it is bounded by the Yellow Seas and Pacific Ocean which separates it from America; on the south by the Chinese Sea and the kingdom of Tonquin; and on the west by Tibet, between which and China vast deserts and mountains intervene.

1. *Divisions.*] It is situated between twenty-one and forty-four deg. north latitude, and ninety-four and one hundred and thirty-three deg. east longitude.

<i>Provinces.</i>	<i>Towns.</i>	<i>Provinces.</i>	<i>Towns.</i>
Niuche.	Niuche.	Xantum.	Chinchis,
Corea.	Petcheo.	Nanking.	Nanking.
Loatonge.	Chinyam.	Chekiam.	Nimpo, Chufan,
Pekin.	Pekin.	Honan.	Honan.
Xansi.	Tayen.	Huquam.	Toangfu.
Xensi.	Sigan.	Kiamsi.	Nankan.
Fokien.	Fochen, Amoy.	Suchuen.	Tchinteu, Queyang.
Canton.	Canton.	Quechen.	Quechen.
Quamsi.	Quelin.	Yunnan.	Yunnan.

The Chinese Islands are Formosa, Ainan, Macao, and the Bushee Islands.

2. *Climate, Soil.*] As this extensive country lies under a variety of climates the air is very different. The south of China is exposed

posed to tropical heats and periodical rains, while the rivers of the north are generally frozen for some months during the winter. The intervening parts are temperate and pleasant. The soil is likewise equally variable, though every part of the country is fertile, either from nature or indefatigable industry. The lands are very flat in many places; and as the Chinese delight in plains, they have levelled with great labour many spots among the mountains. In those provinces which are least fertile, the mountains are clothed with abundance of fine trees, which by means of rivers and canals are conveyed to every part of the empire.

3. *Plants, Animals.*] China produces corn and a variety of grain, particularly rice, in the culture of which the Chinese are very curious, as they are likewise in that of cotton, from which two articles the chief of them are clothed and fed; teas, sugar, tobacco; and fruits, as apples, pears, apricots, peaches, figs, grapes, especially excellent muscadines, oranges, pomegranates, pine-apples, olives, medicinal herbs and roots, and many others to which we are strangers; canes, junks, bamboos, the pea tree, pepper tree, varnish trees, the tallow tree, white wax tree, oil tree, banana tree, the mango and many others, whose perpetual bloom, unfading verdure, and odoriferous scents would render them the admiration of the finest European gardens.

The animals of this country are elephants, camels, horses, oxen, mules, sheep, hogs, tigers, leopards, bears, boars, buffaloes, a variety of deer, among which are the odoriferous roebuck, so called from its having a bag of very strong musk, and a very small stag kept in gardens for their extraordinary beauty, with a great number of other animals.

The birds are eagles, cranes, storks, the birds of paradise, golden hens, pelicans, peacocks, pheasants, geese, swans, ducks, and a numberless variety of others.

Most of the fish common in Europe are found here, besides several of an extraordinary fine flavour and vast magnitude, wholly unknown among us. The yellow fish, caught in the river Yang-tse-kiang is of an exquisite taste, and some of them are eight hundred pounds weight. Those beautiful little creatures the gold and silver fish of China, abound here in the ponds of the curious.

The shining beauty and diversity of colour in their insects baffle description, and the women fix them by way of ornament on their heads; but the most profitable are their prodigious numbers of silk worms and bees. They have another valuable species of insects which prepare a more beautiful wax than that of bees, and which is quite transparent.

4. *Mountains, Mines and Springs.*] In China Proper there are four mountains, but in the following provinces they are extremely numerous. Yunnan, Kœi-tcheou, Se-tchuen, Fo-kien, the west part of Tcho-kiang, and the inland parts of Quangtung and Quang-si, the province of Kiangnan, and the great district of Hœi-tcheou

are

are rendered almost uninhabitable from their amazing numbers and height.

These mountains abound with various metals and minerals, among the former of which are several mines of gold and silver, but from political motives they are not much worked; great numbers of people however entirely subsist by gathering the particles of the gold that is washed down from the mountains. Here are likewise mines of copper, some of which is white, lead, iron and quicksilver, great quantities of porphyry, and quarries of the finest marble, rock chrystal and asbestos; pit coal is dug in great plenty, as well as loadstones, cinnabar, vitriol, allum, lapis lazuli, and a kind of jasper.

Medicinal waters both hot and cold abound in China, and there are several curious springs which regularly ebb and flow. The waters of a lake in the island of Haynan are said to be so greatly saturated with petrifying particles, that all bodies, even fishes, lose their original nature and are converted into stone.

5. *Rivers, Lakes, Canals.*] The rivers of China are the Kyam or Blue River, the Hoambo or Yellow River, the Xo, whose waters are supposed to cure divers diseases, the Kin-xa or Golden River, so named from the great quantity of gold sand it contains, the Yamour, the Argun, and a number of others.

The lakes are numerous, two of the principal among them are Po-Kiang and Sihuh.

But the canals are most extraordinary. By means of these the lakes and navigable rivers, all the parts of this extensive empire for thousands of miles have a communication with each other, and the waters seem alive with the multitudes of vessels, barges and boats on their surface.

There is scarce a city or village in China, especially in the southern provinces, but enjoys the benefit of some navigable river, lake, canal or arm of the sea; so that almost as many people reside on the water as on the land. Wherever there is a town on shore there is another of boats upon the water, and many people are born, live and die there, keeping hogs, poultry, dogs, and other domestic animals on board.

Besides these vessels there are a prodigious number of floats of timber perpetually passing up and down the rivers and canals, which carry a prodigious number of people upon them. Some of these floats are a mile in length, and the proprietors build little huts upon them, where they live till they have disposed of their timber, which they carry sometimes in this manner a thousand miles.

The canals of Europe appear diminutive when compared with those of this country. The famous canal of Yunlyangho, dug about the end of the third century by the Emperor Chi-t-fu, which traverses the empire from north to south, for the space of three hundred leagues, connecting several rivers from Canton to Pekin, is of such stupendous dimensions, that it is navigated by the imperial barks

which

which are as large as the British frigates. In some provinces however the inland navigation of China is very incomplete, and attended with great trouble and danger, through their ignorance of the contrivance of locks. Where the country is not quite flat they must have as with us their upper and lower canals; the bottom of the passage between these is an inclined plane of hewn stone, of which also the sides of the canals are formed: The water pours rapidly down this sluice or passage, and boats in descending from a superior to an inferior canal, are abandoned to the fury of the current, notwithstanding the danger that must attend so rapid a passage. On the other hand, in ascending this sluice or passage they are dragged up by main force; four or five hundred boatmen, assisted by captains being necessary to draw a barge from a lower to a higher canal.

6. *Commerce and Manufactures.*] The Chinese carry on a considerable traffic with the European nations with whom they deal for ready money, despising the manufactures of every country but their own. The articles exported from thence are raw silk, cotton, manufactured silks, gold and silver stuffs, painted gauzes, teas, china-ware, lacquered-ware, paper, and the ink which is well known to us under the name of Indian ink.

7. *Curiosities.*] Among the mountains of China are some remarkable volcanoes and waterfalls. The celebrated walls of the Romans and other nations of antiquity appear diminutive when compared with that which divides China from Tartary. It is carried over mountains and vallies, is one thousand five hundred miles long, from twenty to twenty-five feet high, and sufficiently broad for six horsemen to travel abreast without the smallest inconvenience. Though this wall has stood more than one thousand eight hundred years it is still pretty entire, being composed chiefly of bricks, and built with such a strong cement or mortar as seems to bid defiance to the ravages of time; it is strengthened by towers, gates and bulwarks; and before the conquest of China by the Tartars was usually garrisoned by a million of soldiers.

In the plains the canals are a wonderful improvement, and bespeak the extraordinary diligence of the people; among the rocks and mountains their roads are still more astonishing.

Over the river Safrany there is a bridge, consisting of a single arch, whose span is four hundred cubits and its height five hundred, it connects two mountains. The Cientao, or road of pillars, in the province of Xensi, is sufficiently broad for four horses to travel abreast, and near four miles in length; it is defended by an iron railing, and unites the summits of several mountains, in order to avoid all the devious windings to the capital; it is partly supported by beams, but in most places, from the great depth of the vallies, it rests upon stone pillars of a tremendous height. The bridge of chains, hung over a frightful valley in the neighbourhood of King-tung, appears a still more extraordinary kind of communication. This romantic

mantic and airy bridge consists of twenty iron chains, and connects two high mountains. The design of Europeans does not appear in any age to have been sufficiently bold to have imagined such an undertaking. Some of the Chinese bridges are built upon barges, chained together in such a manner as to separate at pleasure and let vessels pass them. The bowels of some of the mountains are penetrated with spacious caverns, and others have roads cut through them of considerable length. Some of their mountains are formed with great labour and address into various shapes, so as to resemble houses, birds, &c.; and on their summits are temples, monasteries, and other remarkable structures.

The triumphal arches in China erected in memory of their great princes, legislators, philosophers, &c. are said to be one thousand one hundred, of which two hundred are remarkably magnificent. And superstition has erected to fabulous deities pagodas or temples even in the most arid deserts and on the barrenest mountains with incredible labour and expence. Before the gates of every great town there are likewise beautiful towers of a similar construction. Of all these towers that of Nanking claims the pre-eminence: It is called the Porcelain Tower, being wholly covered with the most beautiful china, which still retains its original beauty, though it has stood near four hundred years. The tower is built in an octangular form and is nine stories high; between every story there is a kind of pent-house, shed or projecting cornice on the outside of the tower, on the corners of which are hung little bells which jingle with the wind. This tower from the ground to the top of the ball which terminates it, is near three hundred feet high, each story decreasing in breadth as it rises in height; and the whole forms an elegance of appearance beyond any ancient or modern piece of architecture to be met with in the east.

The fire-works of the Chinese exceed those of all other nations both in beauty and variety.

8. *Language, Learning.*] The language of the Chinese consists only of three hundred and thirty words, which are all monosyllables, at least they are pronounced so short that there is no distinguishing above one syllable or sound in them, but the same word, as expressed with stronger or weaker tone, has different significations; accordingly, when the language is accurately spoke, it makes a sort of music, which has a real melody, that constitutes the essence and distinguishing character of the Chinese tongue. The characters of the Chinese are as singular as their language; they have not, like us, any alphabet, containing the elements, or, as it were, the principles of their words. Instead of an alphabet they use a kind of hieroglyphics, whereof they have above eighty thousand; every one of these characters signifies a word or a whole sentence, but their most learned men are hardly masters of them all: those, however, in common use do not exceed three thousand, which are understood in every part of the empire.

Learning

Learning is essentially necessary to qualify a man for every public employment, and the only means of advancement in this part of the world; it is not therefore to be wondered that the Chinese, in their skill in the sciences, their researches and acquirements were superior to every other distant nation that the Europeans have visited. The Chinese, however, who had been taught to treat every country but their own with contempt, on their first acquaintance with the Europeans, expressed the greatest astonishment on finding them acquainted with arts and sciences; and on being informed that there were cities and houses in Europe, "how is it possible," exclaimed they, "that a people so remote from us should have any knowledge or capacity? they have never read our books; they were never modelled by our laws; and yet they speak, write and reason as we do."

There are a vast number of public libraries in China, each of which contains prodigious quantities of books; in every city there are colleges and observatories, and to watch the Heavens both night and day constitutes one of the chief employments of their learned. They have recorded an eclipse which happened 2155 years before the Christian æra; but eclipses and comets are the principal phenomena of which they have any account till much later periods. The Jesuits assisted them in regulating their calendar, and from them much of their present mathematical knowledge is derived.

9. *Religious Profession.*] Various forms of idolatry deform this improved country. Their deities appear to have been men eminent in their several ages, particularly the inventors of arts and sciences: they also worship things inanimate, as mountains, woods and rivers; but never sacrifice to vice as is customary with most Pagans, and they acknowledge one Supreme Being.

The Emperor being of the Tartar race, follows the idolatry of that nation, and worships the Dalay Lama; this object of idolatry is no other but a human being; his residence is in a temple upon the mountain Putali in Tibo. He always receives his votaries sitting cross legged; and neither speaks or moves otherwise than by sometimes lifting his hand as a sign of grace towards a favourite worshipper. Princes and people flock to him in great numbers, believe him immortal, pay him their adorations, and bestow him rich presents. He is generally a person that has been purchased from some healthy peasant when in his childhood by the lamas, who are in fact the governors of Tibet; when he grows old they fix another in his place, and if any of the people discover the change, they pretend the grand lama has thought proper to alter his appearance. The kutuchtu or high-priest of the Moguls is a similar but inferior person; on his decease his soul is supposed to immediately transmigrate to the body of some youth, which by certain marks the lamas pretend to discover, and accordingly he is treated as high-priest, and considered as omniscient and immortal. There are three other sects in China, viz. the followers of Li-Laokun;

the disciples of the celebrated Confucius; and the worshippers of the idol Fo or Fohi, the founder of the Chinese nation, and this sect is much more numerous than the former two. Perhaps, however, it would hardly be the part of candour to rank the sublime doctrines of Confucius with the gross and idolatrous tenets of the Chinese; he taught that God was a most pure and perfect principle, and the fountain and essence of all beings; he enjoined on his disciples the strictest morality, a disregard of riches and pleasure, and the exercise of every virtue: and this great and good philosopher by the innocent sanctity of his manners recommended his precepts in the expressive language of conduct which speaks louder than words.

10. *History.*] This empire is certainly of very great antiquity; but like other ancient nations has been aggrandized by fables. Besides the internal revolutions that have happened among the Chinese, they have for 1000 years back, at different periods, had contests with the Tartars, by whom they were finally subdued in 1645, and their conquerors since that period have commixed with those whom they subdued.

S E C T I O N V.

INDIA.

All the islands in the Indian ocean, and many in the Pacific, with the whole coast of Asia, from Arabia to where it borders upon Japan, are sometimes included under the general name of the East Indies; and under the distinct title of India or Indostan is comprehended an extensive country, bounded on the north by Tibet and Usbeck Tartary; on the south by the Indian ocean; on the east by China and the Pacific, and on the west by the Indian ocean and Persia. It is situated between one, and forty deg. of N. latitude, and between sixty-six and one hundred and nine deg. E. longitude, comprehending the Mogul's empire, and numerous smaller kingdoms; extensive continental territories claimed by the English East India Company, and settlements also of other European nations.

1. *Divisions.*] This vast country is generally divided into three parts: 1. the Peninsula of India beyond the Ganges, on the east; 2. on the north, the main land or empire of the Great Mogul; 3. on the west, the Peninsula within, or on this side the Ganges. The two latter divisions are also called the Hither India or Indostan, and the other the Farther India. The divisions are all extensive and very populous.

The

<i>The Farther Peninsula.</i>			
<i>Kingdoms.</i>	<i>Towns.</i>	<i>Kingdoms.</i>	<i>Towns.</i>
Acham.	Chandara.	Malacca.	Malacca.
Ava.	Ava.	Tonquin.	Cachao or Keccio.
Arracon.	Arracon.	Laos.	Lanchang.
Pegu.	Pegu.	Conchin China.	Thoanoa.
Martaban.	Martaban.	Cambodia.	Cambodia.
Siam.	Siam.	Chiampa.	Padram.

<i>MOGUL'S Empire.</i>			
<i>Provinces.</i>	<i>Towns.</i>	<i>Provinces.</i>	<i>Towns.</i>
Bengal.	Calcutta.	Multan.	Multan.
English,	Fort William.	Kaican.	Kaican.
	Huegly.	Cabul.	Cabul.
	Dacca.	Candish.	Medipour.
English and Dutch,	Malda.	Berar.	Berar.
	Chatigan.	Chitor.	Chitor.
	Cassumbazar.	Ratipor.	Ratipor.
Naugracut.	Naugracut.	Narvar.	Narvar.
Jesuat.	Rajapour.	Gualeor.	Gualeor.
Patna.	Patna.	Agra.	Agra.
Necbal.	Necbal.	Delly.	Delly.
Gore.	Gore.	Lahor or Pencah.	Lahor.
Rotas.	Rotas.	Hendowns.	Hendowns.
Soret.	Jagaral.	Cassimere.	Cassimere.
Jeffelmere.	Jeffelmere.	Jengapour.	Jengapour.
Tata or Sinda.	Tata.	Asmer or Bando.	Asmer.
Bucknor.	Bucknor.		

<i>The Hither Peninsula.</i>			
<i>Coasts.</i>	<i>Chief Towns.</i>		
COROMANDEL.	Madura.	Tanjour.	Trincombar, Danes.
	Negapatan, Dutch.	Bisnagar.	Portanova, Dutch.
	Fort St. David, English.	Pondicherry, Cony- mere, French.	Coblon.
	Sadrasapatan, Dutch.	St. Thomas Portuguese.	Fort St. George or Madrafs, English.
	Pellicate, Dutch.	Golconda.	Gani or Coulor diamond mines.
	Maffulapatan,	English and Dutch.	Vizacapatan, English.
	Bimlipatan, Dutch.	Orixa.	Ballasore, English.
	Tegapatan, Dutch.	Angengo, English.	Cochin,
	Dutch.	Callicut, Tellicherry, English.	Cananore, Dutch.
	Monguelore, Bassilore, Dutch and Portuguese.	Raalconda diamond mines.	Cawar, English.
MALABAR.	Goa, Portuguese	Rajapore,	French.
	Dabal, English.	Dundee, Shoule,	Portuguese.
	Bombay, English.	Bassaim, Sal- sette, Daman, Portuguese.	Surat.
	Swalley.	Barak, English and Dutch.	Amedabat.
	Cam- baya.	Diu, Portuguese.	

Polygamy, the doctrines of Mahomet, and various forms of idolatry deform many parts of this land. In the European settlements Christianity is professed. Each of the numerous kingdoms of India are governed by one and sometimes more kings or princes, who exert the most despotic power over their subjects.

2. *Climate and Soil.*] The air in the northern parts of India is very dry and healthy, but in the southern provinces, especially in the vallies and low lands near the sea and rivers, it is very hot and moist. In some places they are obliged to erect their houses upon high pillars to secure them from the floods during the rainy season, at which time they have no communication with each other but by boats; and such storms of wind, thunder and lightning happen about the equinoxes on the shifting of the monsoons, as are seldom seen in Europe. The year is not divided into summer and winter as with us, but into the dry and wet seasons, or into the easterly and westerly monsoons. The monsoons are periodical winds which prevail in these tropical climates; during our summer they blow from the north east; and during our winter again from the south west. When the storms cease, which take place on their changing, there are sea and land breezes near the coast, which shift every twelve hours.

The soil is in general exceeding fertile, especially those parts that are overflowed by the floods, which like those of the Nile are periodical, and enrich the grounds with the mud and slime they deposit on their surface.

3. *Plants, Animals, Minerals.*] India produces corn, rice, pepper, and a variety of garden plants and drugs; pomegranates, tamarinds, citrons, dates, grapes, almonds, guavas, cocoa-nuts, plumbs, plantanes, mangoes, pine apples, lemons, oranges, limes, melons, jaccas, mulberries, and a variety of apples, pears, and other fruits; sugar canes, cotton, indigo, &c.

The quadrupeds are elephants, rhinoceroses, camels, dromedaries, horses, asses, mules, oxen and buffaloes; tigers, lions, leopards, wolves, jackalls, musk cats, very large bats, apes and monkies; red deer, fallow deer, elks, antelopes, sheep, goats, kids, hogs, hares, &c. birds of the most beautiful plumage embellish the forest. The rivers abound in fish, but many of them are greatly infested by crocodiles. Serpents and scorpions abound in every part of India, and Musketoos, locusts, and other insects of a similar nature, are very troublesome to the inhabitants. The mines yield gold, diamonds, rubies, topazes, amethysts, beryls, asterias or cats eyes, and other precious stones or gems. Travellers inform us that mines of lead, iron, copper, and even silver are found in Indostan; and quarries of stone are in great plenty.

4. *Mountains, Rivers.*] The most remarkable mountains of India are those of Caucasus which divide it from Usbec Tartary, and those of Naugracut which separate it from Tibet; besides these there are chains of mountains on both peninsulas running from
north

north to south almost the whole length of the country. On the hither or Western Peninsula it is summer on one side of these mountains when it is winter on the other. Thus a south west wind prevails for months on the coast of Malabar, attended by prodigious and constant rains, while the weather is serene on the coast of Coromandel on the east; and when on the change of the monsoon no vessel dare venture to stay on the coast of Coromandel, they periodically return to Bombay on the west.

The principal rivers are in the Farther India, the Domea, the Mecon, the Menan and the Ava; in the Hither India are the Indus and the Ganges. The Indians are persuaded that the Ganges does not take its rise from the bosom of the earth, but descends from Heaven into the paradise of Devendre, and from thence into Indostan: they therefore hold its waters in the greatest reverence, crowding in multitudes from the remotest parts of the country to wash in them; they think themselves favoured by Heaven if they are permitted to expire on its banks; and he who accidentally meets death by its waters, is not only supposed to have been himself purified from sin, but that even his surviving family participate in the blessing, and they are ever after treated with peculiar marks of respect and regard. Such are the mistaken notions of that poor harmless race the Hindoos or Gentoos; their priests are the Bramins the followers of the celebrated Brumma. To be a stranger among these people is a sufficient security, provisions are furnished by hospitality, and when a peasant is asked for water he runs with alacrity and fetches milk.

5. *Manufactures, Commerce.*] The different kingdoms and provinces of India traffic with each other, and with the neighbouring islands, the nations of China, Tartary, Persia and Arabia, but their principal trade is with European nations. The exports are gold, diamonds, ivory, silks, muslins, chintzes, dimities, calicoes, lacquered wares, and various toys, different kinds of gums, drugs, &c. From Europe are imported broad cloth, lead, flints and cutlery wares, wrought plate, watches and looking glasses, with other goods of inferior value for the use of the natives.

The empire of Indostan, particularly the kingdom or province of Bengal, from the mildness of its climate, the fertility of its soil, and the industry of the Hindoos, has been always remarkable for its commerce; every village has its canal, every town its river, and the whole kingdom the Ganges, which falling by various mouths into the bay of Bengal, opens a communication with the ocean for exporting the produce and manufactures of this famous country. While the house of Tamerlane filled the throne of Indostan the balance of trade was greatly in favour of Bengal: it was at that period one of the richest, most populous, and best cultivated kingdoms in the world; the bullion it annually received from the English, Dutch, French, Danes and Portuguese; the gold from the gulphs of Arabia and Persia, and the treasures from the other parts of
India

India were prodigious. Even under the revolted viceroys it appeared superior to the partial rapine of those impolitic nabobs who plundered the people but to squander it amongst them; and the catalogue of its calamities seems only to have been filled by the coming in of foreigners. Since that period the troubles and civil wars which have ravaged this kingdom have been tragical in the extreme. The country has been depopulated, distress of every kind has succeeded to plenty and ease, many of the principal cities have been rendered desolate, the most fertile fields in the world laid waste, and near five millions of harmless and industrious people either expelled or destroyed.

6. *Languages.*] The inhabitants of Siam, in the Farther Peninsula, use two languages; the one called properly Siamese, and the other Balli: the former, which is the language commonly spoken, has thirty seven letters; the latter, which is the learned language, or that in which their books or writings are composed, has thirty three letters, all consonants; the vowels and diphthongs are expressed by peculiar characters distinct from the letters, as in the Hebrew. Both these languages are written from left to right, and resemble the Chinese in chiefly consisting of monosyllables, and having neither conjugation nor declension; like that too, they are both highly accented, so that the delivery of them approaches nearly to singing.

The inhabitants of Malacca, in the Farther India, are accounted mere savages in their manners; yet their language, the Malayan tongue, is esteemed the finest in all the Indies, where it is spoke as common as the French in Europe.

The languages of Indostan or the Hither India are various, but may all be included under three general heads:

The Shanferit, an original language, intermixed with a number of words and even phrases from the Persian and Arabic, is universally spoken throughout the empire of Indostan, and is the current language of the country.

The Persian is the language of the polite circles, and prevails in most of the courts of the East, as the French does in those of Europe.

The Arabic is the learned, or if we may be allowed the term, the classical language of Indostan: here, as in Persia, their records and a few books are preserved in this language.

7. *History.*] Of the ancient history of this country but little is known. Early in the thirteenth century it suffered the ravages of Jenghiscan, and on the close of the fourteenth was conquered by Tamerlane or Timur Beck. The Grand Moguls or Emperors of Indostan are very emulous of tracing their descent from Tamerlane, and always pretend to reign in right of him. In 1738, Nadir Shaw of Persia or Kouli Khan, ravaged Indostan and plundered Delhi its capital.

SECTION

S E C T I O N VI.

PERSIA.

Modern Persia comprehends the ancient Hyrcania, Bactria, Susiana, Parthia, Media and part of Assyria, Iberia and Colchis. This extensive country is situated between the twenty-fifth and forty-fifth deg. N. latitude, and between the forty-fifth and sixty-seventh deg. E. longitude. It is bounded on the east by the dominions of the Mogul, by Usbec Tartary, the Caspian sea, and Circassia on the north; by the Indian ocean and the Gulph of Persia or Bassora on the south; and on the west by Arabia and the Turkish empire.

1. *Divisions.*]

<i>Divisions.</i>	<i>Chief Towns.</i>
EASTERN.	Mesched or Thus, Esterabad, Herat, Gafna, Candahor, Sigistan.
SOUTHERN.	Makeran, Lar, Gombroon, Ormus, Schiras.
SOUTH-WEST.	Schouster, Casbin, Ispahan, Hamadam, New Julpha, Arnova, Courmebad.
NORTH-WEST.	Tauris or Ecbatana, Ardevil, Naxivan, Teflis, Gangea, Terki, Ferrabat, Gilan, Rescod, Derbent, Baku.

Climate, Soil.] In those parts bordering upon the mountains, which are usually covered with snow, the air is very cold; in the midland provinces it is naturally serene, pure and exhilarating; but the hot winds which sometime blow over long tracts of sandy deserts from the south and east, are extremely suffocating, and a blast sometimes strikes the traveller dead in an instant.

The soil varies as much as the air, being in some parts exceedingly barren; but in others very fruitful, especially where they can turn the streams of water into the plains and vallies.

2. *Plants, Animals, Minerals.*] The animal and vegetable productions of Persia are much the same with those of India. Their sheep, however, are remarkable for having six or seven horns each, and their tails very heavy. The Persian horses are very beautiful and high spirited.

Persia produces copper, iron, lead, antimony, sulphur, saltpetre and emery: here are plains near twenty leagues over covered with salt, and some with saltpetre and allum; and in some parts of Carmania in particular the salt is said to be so hard that the poorer sort of people use it instead of stone for building their cottages.

In

In the provinces of Fars and Skirvan there are great quantities of bole-armoniack and a sort of marle used by the natives instead of soap. Near the Caspian seas there are springs of Naphtha, which frequently takes fire on the surface and in great quantities runs flaming into the sea to an almost incredible distance from the shore. There are different kinds of Naphtha in Persia, the dark kind supplies the place of oil in lamps, and is used as fuel; the white sort, found in the Peninsula of Apcheran, is both taken as a cordial and medicine, and used externally; it is said to be carried into India, where being properly prepared it makes a most beautiful and durable varnish.

The Persian marble is of various colours, and some is almost as transparent as crystal; mineral azure is also found in this country, but the most valuable mines are those in which the turquois stones are contained.

3. *Mountains, Rivers.*] The principal mountains of Persia are those of Caucasus and Arrarat, sometimes called the mountains of Daghistan, which fill all the isthmus between the Euxine and Caspian seas. The enormous ridge of Taurus, together with its branches, runs through the country from Natolia to India.

There are very few rivers in Persia, but the most remarkable are the Kur, anciently Cyrus; and Aras, anciently Araxes. The Indus runs on the east, as the Euphrates and Tigris do on the west of Persia. The scarcity of water in this country has given rise to many ingenious methods of conveying it to the cities, corn fields and gardens. Wells of a prodigious depth and breath are in many places dug, out of which, with the assistance of oxen, they draw up water in leather buckets which are emptied into large cisterns or reservoirs, and conveyed off by aqueducts and canals; some of these are carried under ground to the distance of twenty or thirty leagues.

4. *Manufactures, Commerce, Roads.*] The principal commodities of Persia are silks, mohair, camblets, carpets, leather, embroidery, and gold and silver laces and threads.

Their foreign trade is carried by Europeans ships, having few of their own; and their commerce is now almost ruined by the perpetual wars they have been engaged in, which have desolated the face of the country and uncivilized the dispositions of the inhabitants. Formerly great numbers of travellers, intending to journey with their merchandizes and commodities from one city or province to another, assembled socially together and formed themselves into caravans, frequently consisting of four or five hundred persons, with a still greater number of camels and other beasts of burden; at stated distances they found caravanferas or inns, provided either at the public expence, or by the benevolence of individuals, for their reception, free from the expence of lodging; or they pitched their tents, which they always brought with them on these expeditions, in some verdant spot, where they might find water and pasture for their

beasts and purchase provisions for themselves. The same public attention, or private philanthropy, which provided places of rest and fountains of water, had also levelled the mountain, or raised the valley, and smoothed the road to safety and convenience. But since the civil disputes and intestine commotions have suspended the operation of the laws and the execution of justice; since the horrors of war have ravaged the country, these advantages have considerably fallen off: the highways are neglected and infested with banditti, who seize on the caravans and plunder them as lawful prize; the caravanferas are deserted or become receptacles for robbers; and the fountains are dried up, or their sources choaked with the mouldering ruins.

5. *Curiosities.*] The baths near Gombroon are highly esteemed for their salutary effects; but the principal natural curiosity in this kingdom is a combustible ground about ten miles distant from Baku, where the followers of Zoroaster perform their devotions; it is impregnated with the most amazing inflammatory qualities, and round it are several small old temples: in one of these the votaries shew a large hollow cane stuck in the ground, out of which issues a flame resembling that of a lamp filled with very pure spirits, and this they hold is the sacred flame of universal fire.

The most magnificent remains of antiquity in Persia are the ruins of Persepolis, the ancient metropolis of the kingdom, consisting of superb columns, spacious stair-cases, grand portals and beautiful pilasters, adorned with figures in basso relievo. About a league distance from these ruins is a famous mountain situated between two fine plains. It is an entire rock, and having been levelled by art its sides are quite perpendicular: there are various figures upon it represented in bas-relief, and several tombs cut out of the rock, with two small edifices, and several inscriptions. These are supposed to have been the burial places of the ancient kings of Persia, but the zeal of the Mahometans, who think it meritorious to destroy all kinds of images, and the injuries of time have greatly defaced them.

A modern edifice of an extraordinary kind is to be seen at Isfahan. This is a pillar sixty feet high, erected by Shaw Abbas, after the suppression of a rebellion, and consists of the skulls of beasts. He had made a vow to build such a column of the skulls of the rebels, but upon their submission he substituted those of brutes, obliging each of them to furnish one.

6. *Religion.*] The profession at present established in Persia is that of Mahomet; but they differ from the Turks by following the sect of Ali, whom they consider as the genuine successor of Mahomet; while the Turks assert that Omar and Abu Bekr are the true successors of their prophet, and therefore charge the Persians with heresy.

But

But the ancient religion of Persia is the worship of the Magi, which is still professed in this empire and the Indies. The professors of it seem to have a peculiar veneration for fire, and the inflammable soil near the city of Baku, already described, is the principal scene of their devotion.

7. *Language, Learning.*] The language of Persia varies in the different provinces; the Persian is only spoken in its purity in the southern parts of the kingdom, in the city of Isfahan, on the borders of Arabia, and on the coasts which skirt the Gulf of Persia; in the parts which border on the Caspian sea the Turkish language prevails, and the provinces of Ghilan and Mazanderan use a mixture of both; but in all parts of the kingdom public writings, records, and works of learning are in Arabic; many words of which are also used familiarly in the conversation of the polite, who still affect a sublimity of expression.

The poetical writings of the Persians are in high esteem all over the East; but their learning is at present at a very low ebb, and education so totally neglected, that persons in the higher ranks are scarcely taught to read or write. Scribes however are numerous and very expert; they carry the lines like those who write in Hebrew, from the right hand to the left.

8. *History.*] It appears from the book of Genesis, that Chedorlaomer, king of Elam or Persia, was a powerful prince in the time of Abraham. About the time of the captivity of Israel this country was conquered by Nebuchadnezzar of Babylon. After this it was a province of Media, till Cyrus, under whom the Jews returned from their captivity, gained the ascendancy over the Medes, and established a great empire, which continued till it was overthrown by Alexander the Great. In 250, before the Christian æra, the Persians revolted from the successors of Alexander, and founded a new empire, under the name of the Parthian. The Parthians or Persians had frequent wars with the Romans, but neither of them gained any permanent advantage over the other; and in 651 an end was put to this empire by the Sarazens. After this period the country underwent a variety of dreadful revolutions, and was conquered successively by Jenghis Khan in 1218, and by Tamerlane in 1392. In the beginning of the fifteenth century the family of Sophi ascended the throne, since which time the country has been harrassed by civil wars. In the beginning of the present century Nadir Shaw put the sovereign to death, ascended the throne, ravaged Indostan, dethroned the Mogul, and behaved with such cruelty that in the year 1747 his own relations and principal officers assassinated him in his tent. After his death a number of competitors laid claim to the crown, which occasioned a horrid scene of bloodshed till 1763, when Kherim Khan, the present king, was placed on the throne; but the kingdom is still in a weak and languishing condition.

SECTION

SECTION VII.

ARABIA.

Arabia extends from the thirty-fifth to the sixtieth deg. east longitude, and from twelve deg. thirty min. to thirty deg. north latitude. It is bounded on the north by Asiatic Turkey, on the south by the Indian ocean, on the east by the Euphrates and the gulphs of Bassora and Ormus, and on the west by the Red Sea.

1. *Divisions.*] It is divided into three parts, Arabia Petræa or the Stony, Arabia Deserta or the Defart, and Arabia Felix or the Happy.

*Divisions.**Chief Towns.*

PETRÆA. Suez.

DESERTA. Mecca, Siden, Medina, Dhafar.

FELIX. Mocha, Sibit, Hadramut, Cassien, Segur, Muscar, Jamama, Elcalf.

2. *Climate, Soil and vegetable Productions*] The climate is various. The southern parts are intensely hot. The winds which pass over tracts of sand are penetrating and suffocating, and the sands themselves become formidable, being sometimes raised in such clouds as to bury whole caravans. In the sandy desert it scarcely rains throughout the year, but the few vegetables which such a spot is capable of producing depend for moisture on the copious dews which descend every night after sunset; other parts of Arabia are refreshed with gentle rains.

Arabia the Stony, is the wilderness in which the children of Israel were forty years miraculously supported, and its different rocks and spots, and the mountains of Horeb and Sinai, may be accounted curiosities, as having been the scenes of scripture history.

Arabia the Defart is somewhat less rocky, consisting principally of fruitless tracts of burning sands; it has, however, some spots of land covered with verdure at certain seasons of the year, and feeding numerous flocks and herds: but these are principally near the Euphrates, the only river of any consequence which waters this extensive country. There are a few others, such as the Nageiran, the Pran, and the Chaty; but these are so small as to be at all times inconsiderable, and in the summer season they are generally dried up. The Eastern manner of travelling in caravans especially obtains in crossing these deserts; a frugal fare serves the camel and his rider, but water seems above all a necessary supply. They seldom encumber themselves with tents, the constant serenity of the sky rendering such a precaution unnecessary. At nights the camels are disposed in a circle, where they lie with their heads outwards; within them their furniture and lading are arranged in exact order; and the cen-

tre is occupied by the travellers, who, laying carpets on the sand, take others to cover them, and make a pillow of such wearing apparel as they carry with them, to change or vary their dresses. Should invaders approach, the faithful camels are instantly alarmed, and by their rising and trampling, awake the tired travellers, and put them on their guard.

Arabia the Happy is in many places very barren; some vallies, however, between the mountains, and a few of the plains, which are so situated as to be well supplied with water, are pleasant and fruitful, producing corn, pulse, flowers, peaches, apricots, dates, grapes, lemons, oranges, &c. in great perfection. This country also supplies Europe with great variety of drugs, such as myrrh, frankincense, balms, manna, aloes, and gum olibanum; and it produces in great plenty that berry which is imported into Europe under the name of Turkey coffee.

In Arabia there are mines of gold, silver, diamonds, rubies, and sardonyxes of extraordinary beauty and colour.

The Arabs in general are a wandering people. There is, however, a considerable trade carried on from Mocha by the English and Dutch companies that are settled there. The Portuguese carry on a trade with Moscat, and the Turks with Suez.

3. *Curiosities.*] The principal curiosities in this province are the mosques at Mecca and Medina; the former was the birth place of Mahomet, at the latter is his tomb. To both these places great numbers of pilgrims annually resort, but more particularly to Mecca; every Mussulman being obliged to make this pilgrimage once in his life, or at least to send a deputy. The roof of the mosque at Mecca is covered with gold, and has an hundred gates. That at Medina is supported by four hundred pillars, and furnished with three hundred silver lamps continually kept burning; and under cloths of silver and gold rests the coffin or tomb of the impostor. Christians are forbid approaching Mecca or Medina within a limited distance on pain of being burnt alive.

4. *Religion, Language.*] The Arabians in general are Mahometans, but many of the wild tribes of rovers are still Pagans. Their language, which for copious and expressive elegance, has been preferred, as has been already observed, by Turks, Persians, and other inhabitants of the east, even to their own, is hardly spoken in its purity in any part of Arabia; Arabesk, or corrupt Arabic, being the common dialect of the country. The ancient Arabic, which is said to be a dialect of the Hebrew is taught in their schools like Greek and Latin in Europe, and used by all the Mahometans in their worship; for as the Koran was originally wrote in that language, they will not suffer it to be read in any other; they suppose it to have been the language of Paradise, and think no man can attain a thorough knowledge of it without a miracle, it being composed of several millions of words; it is said that there are in it a thousand different names for a camel, and five hundred for a lion.

5. *Literati,*

5. *Literati, Learning.*] The names of Avenzoar, Avicenna, Honain, Mesuach and Thograi have been eminent in physic, astronomy and mathematicks. To the Arabians we are indebted for that simple and very elegant invention, the expressing of all possible numbers by means of the ten digits; and indeed from them most of the literary and scientific improvements of Europe were derived; but those are now either totally lost in the land where they originated, or dwindled into blind conjecture, obscure and mysterious jargon, or superstitious prognostication. The depredations of the robbers, perhaps more than even the desarts, render solitary and waste many parts of this land, where splendid ruins only remain as monuments of their ancient grandeur.

6. *History.*] Arabia was never yet conquered by any foreign power, though several attempts have been made for that purpose. About the year 622 the Arabians began to distinguish themselves under the name of Saracens; for Mahomed, at that time, made himself the head of a sect, which in about eleven or twelve years made themselves masters of all Arabia, and presently after extended their conquests over a great part of the world. After this the seat of their empire was removed to Bagdat and fell under the Turks, while Arabia underwent some internal revolutions but retained its independency.

S E C T I O N VIII.

ASIATIC ISLES.

1. *Kurile Islands.*] The Kurile Islands reach from the vicinity of Japan to the southern promontory of Kamtschatka, the principal of these form the land of Jesso or Jedso. The natives generally dress in long robes, and carry on some trade with the Russians and Japanese, but they cannot be said to be under any particular government. The soil is in general rocky and barren, the coasts are dangerous, and in some of them there are volcanoes.

2. *Japan.*] The Japan or Nippon Islands are situated between thirty and forty-one deg. north latitude, and between one hundred and thirty and one hundred and forty-seven deg. north latitude. The air is healthy in almost every part of this empire, the soil fruitful and highly cultivated, producing corn, rice, tea, a vast variety of fruits, timber, &c. Here are numerous herds of cattle, and the mountains afford mines of gold, silver, copper, tin, lead and iron, and quarries of slate and marble.

There are four volcanoes in Japan, one of which is very dreadful; and in the neighbourhood of these burning mountains are several medicinal springs. Among the artificial curiosities is a famous colossus of copper gilt: It is of a prodigious size, its thumb being

fourteen

fourteen inches in circumference, and the other parts in proportion.

The Japanese are very ingenious mechanics, and excel the Chinese in the various works which are common to both nations. They are very fair dealers, but under pain of crucifixion have expelled the Portuguese who had made near a third part of the empire profelytes to their faith. Many of the converts suffered martyrdom with the most unshaken fortitude, and after being harrassed near forty years, thirty-seven thousand of them attempting at length to defend themselves by arms were all cut off in one day. The intrigues of the Missionaries themselves, the jealousies of the bonzi or priests of Japan, and the secret machinations of the Dutch adventurers, are all blamed for bringing about these cruel persecutions. The Dutch are now the only Europeans who are allowed to trade here, and even these are under the most humiliating and degrading restrictions.

The language of Japan is similar to that of China, but much more grammatical, copious and polite; they also write in characters, but they are different from the Chinese. The bonzi or priests study philosophy, mathematics, &c. and teach the sciences to youth in their academies, of which they have great numbers.

The grossest idolatry prevails in Japan; and in common with other nations of the East, they believe in the metempsychosis or transmigration of the soul.

3. *Formosa.*] The luxuriant island of Formosa receives its name from its extraordinary beauty: It lies to the east of China, and pretty much answers the description of that country, to which it is mostly subject by conquest.

The original natives are represented as an inoffensive disinterested people, of great purity of manners, and social, benevolent and sincere; they still possess part of the eastern quarter of the island, and retain all their primitive customs.

4. *Ladrones.*] The Ladrones, or Marian islands, in the Pacific Ocean, are situated in one hundred and forty deg. east longitude, and between twelve and twenty-eight deg. north latitude; they are about twenty in number, and were discovered by Magellan in 1521. Guam is the only island which can be said to be inhabited, where the Spaniards have a fort and a small garrison; and most of their galleons touch here in their voyage from Acapulco in America, to Manilla.

Tinian, another of the Ladrones, was once well peopled, but a dreadful mortality swept off the greatest part of the natives, and the remainder removed to Guam. Several English navigators have touched at this island, particularly Commodore Anson, who met with great refreshment for his crew, not less from the salubrity of its air, than from its fruits and other vegetable productions, many of which are powerful antidotes against the scurvy.

The flying proas of the original natives are said to sail after the rate of near seven leagues an hour.

5. *Philippine*

5. *Philippine Isles.*] The Philippine Islands, discovered by Magellan, received this name in honour of Philip II. of Spain, who colonised them. They lie between nineteen and fifty deg. north latitude, and between one hundred and fourteen and one hundred and thirty deg. east longitude: They are about one thousand one hundred in number; the principal of which are Manilla or Luconia, Samar or Philippina, Masbate, Mindoro, Luban, Paragoia, Panay, Leyta, Bohol, Sibuyan, Negro Islands, St. John's, Xolo and Mindanao.

These fertile islands are inhabited by four or five different nations; as the Blacks or Aborigines, who occupy the woods, mountains and desert places, the descendants of the Chinese, who once were in possession of the coasts; the Malays and Mahometans, who come hither from Malacca, Sumatra, Borneo and Macassar, the Spaniards, Portuguese, and other Europeans; and a mixture compounded of all these.

The city of Manilla, the capital of all the Philippines, which is finely situated, and has as convenient and safe a port as any in the world, is a large, wealthy and populous place; the houses are elegant, the streets wide and regular; it has a cathedral, a college (formerly the Jesuits) and several convents, congregation-houses, and other superb edifices both public and private. Two vessels sail annually from this port to Acapulco in New-Spain, loaded with the precious produce and manufactures of the East, which return freighted with silver, they belong to the King of Spain: It was one of these rich returning galleons which was taken by Commodore Anson in 1743.

6. *Spice Islands.*] The Molucca and Banda Islands, or (as they are more generally called) the Spice Islands, are sixteen in number, and lie under the equator; the principal of them are Ternate, Tydore, Machian, Motyr, Bachian, Amboyna, Gilola, Banda and Celebes. These islands, which produce such amazing quantities of cloves, mace and nutmegs as to supply the whole world, had added to the luxuries of Europe above two thousand years before we knew to what part of the earth we were indebted for them. The Egyptians, Arabians and Persians formerly brought them through the Red Sea, and from thence by the navigation of the Nile, or by Caravans to the coast of Egypt, where the Greeks, Romans and Carthaginians resorted to purchase the silks and spices of India; and after them other succeeding nations, till about three hundred years since the Portuguese, having doubled the Cape of Good Hope, settled factories in different countries in the East, and at length discovered the native land of fragrance and spices. The English under command of Sir Francis Drake were the next Europeans who visited these islands; but the Dutch have expelled them both, garrisoned the islands, and monopolized the spice trade to themselves.

7. *Celebes.*] The island of Celebes or Macassar, which in a general view may be considered as one of the spice islands, is five hundred

dred miles long and two hundred broad, and lies under the equator. The Dutch have a fortification on it; but the internal part of it is governed by three of its own kings, the chief of whom resides in the town of Macassar.

In this and almost all the other oriental islands the houses are raised on posts on account of the floods, and they are only accessible by ladders, drawn up at night, for their security against venomous reptiles. The natives, whose port of Jampoden is the most capacious in that part of the world, carry on a considerable trade with the Chinese.

8. *Sunda Isles.*] The Sunda Islands are situated between ninety-three and one hundred and twenty deg. east longitude, and lie under the equator; they comprehend the very capital islands of Borneo, Sumatra and Java, besides some of inferior consequence; among which are Bally, Lamboe and Banca.

Borneo, the largest of these islands, is eight hundred miles long and seven hundred broad; it is unshackled with European settlements, and its trade is open to all nations; its harbours, particularly those of Banjar, Masséen, Succadana and Borneo are much frequented by adventurers. Here the Chinese keep shops and retail goods.

The Byayos, or original inhabitants, are subject to many petty kings of their own, and inhabit the most inaccessible mountains; they are a moral, chaste and inoffensive people, and extremely social with each other. The sea coasts are inhabited by Malayan Moors, who are governed by Mahometan princes; but the profession of the island is a mixture of idolatry and Mahometanism.

Sumatra, from the plenty of gold it produces, has been conjectured to be the Ophir of the sacred writings. The English and Dutch have made a few settlements on the coast.

Java is principally in the possession of the Dutch. The capital of it is Batavia, the residence of their governor-general of the Indies, who lives here in all the pomp of oriental magnificence; it is the general place of rendezvous for their East India fleets, which five times a year depart from hence in squadrons for Europe.

The suburbs of Batavia, which are inhabited by persons of almost every nation, are more populous than the city itself; the Chinese, in particular, are computed at one hundred thousand, though thirty thousand of them were cruelly massacred in 1740 by order of the Dutch governor, who after this wicked action embarked for Europe; but on his arrival at the Cape of Good Hope he was apprehended by an order from the states, and remanded back to Batavia in order to be tried; he, however, never reached that city; it was suspected that he was thrown overboard in his passage, in order to prevent an enquiry into an action detested by all mankind.

The Andoman and Nicobar islands lie near the entrance of the bay of Bengal, and furnish the vessels that touch there with fresh provisions and tropical fruits. They are in general overrun with woods; but being destitute of those rich mines and odoriferous groves,
which

which have so often proved the bane of the poor natives wherever they were found; no European nation has ever attempted to make a settlement there. The inhabitants are a friendly and inoffensive people, they seem to pay a kind of adoration to particular caves, and express the greatest joy at the appearance of the moon.

10. *Ceylon.*] The Island of Ceylon, near Cape Comorin on the coast of Coromandel, is two hundred and fifty miles long and two hundred broad. This fertile island, producing almost all the fruits and riches of the Indies, is the original place of the growth of Cinnamon, from which the Dutch reap such extraordinary profit; this people expelled the Portuguese from this island, and are now in possession of all the sea coast, and to the distance of ten or twelve leagues up the country.

The natives, who are called Cinglases, are very inoffensive, but extremely superstitious; they implore the interposition of their saints and heroes, whom they suppose to be ministering spirits of the great Creator. They have besides various idols of monstrous forms. Their language, which is peculiar to themselves, is said to be copious, smooth, elegant and polite.

They have, by tradition, some knowledge of scripture history, and believe that Ceylon was the Garden of Eden or terrestrial paradise. Some suppose that the fleets of Solomon traded with the Cinglases, and that from them they derived their information; while others think that they owed it to the Jews, many of whom, it is said, were settled in the hither peninsula by Nebuchadnezzar.

11. *Maldivia Isles.*] The Maldives lie off Cape Comorin, and extend from seven deg. twenty min. north, to one degree south latitude, but are in no place more than forty leagues broad. The natives are Mahometans, and those who have visited Mecca have the privilege of wearing long beards as marks of superior sanctity. They are said to excel in manufactures, in literature and sciences, and to have a particular esteem for astronomy.

These islands are small but very numerous. The Prince, who exercises his sovereignty over them all, is called Sultan of thirteen provinces and twelve thousand islands. But there is certainly much exaggeration in this sounding title, and many of the real islands are uninhabited; some being only fluctuating hills of sand and barren rocks, and the very largest, called Male, where the king usually resides, is no more than a league and a half in circumference.

Few Europeans (except the Dutch) visit these islands. They carry on a very profitable trade here in a beautiful species of shells called couries, which were formerly used as money by the negroes on the Coast of Guinea in Africa. Among other vegetable productions in these islands, is a particular species of cocoa tree, whose fruit is an excellent medicine in fevers: This tree grows to a large size; and it is confidently asserted that the Maldivians have vessels of twenty or thirty tons burthen, whose hulls, masts, sails, rigging, anchors and cables are all made from this tree. It also affords them

oil for their lamps, fuel to dress their food, a pretty strong kind of cloth, sugar, and candied sweetmeats.

Besides the islands already described, there are a great many small ones scattered in the Indian and Chinese oceans, whose produce and inhabitants are nearly the same with those already mentioned.

12. *South Sea Islands.*] In the great Pacific Ocean there are also unnumbered other islands both detached and in clusters; some very extensive, others quite minute: The European nations but lately found them out, and have not yet attempted to colonise them. The natives are unacquainted with literature and the sciences. They are generally idolatrous and desperate in battle. Without the use of metals they have shewn great ingenuity in their little works of art, their canoes, their weapons, their cloaths and utensils; these form the most modern articles in the cabinets of our curiosi, and their manners are a recent and general topic of conversation with the nations of Europe.

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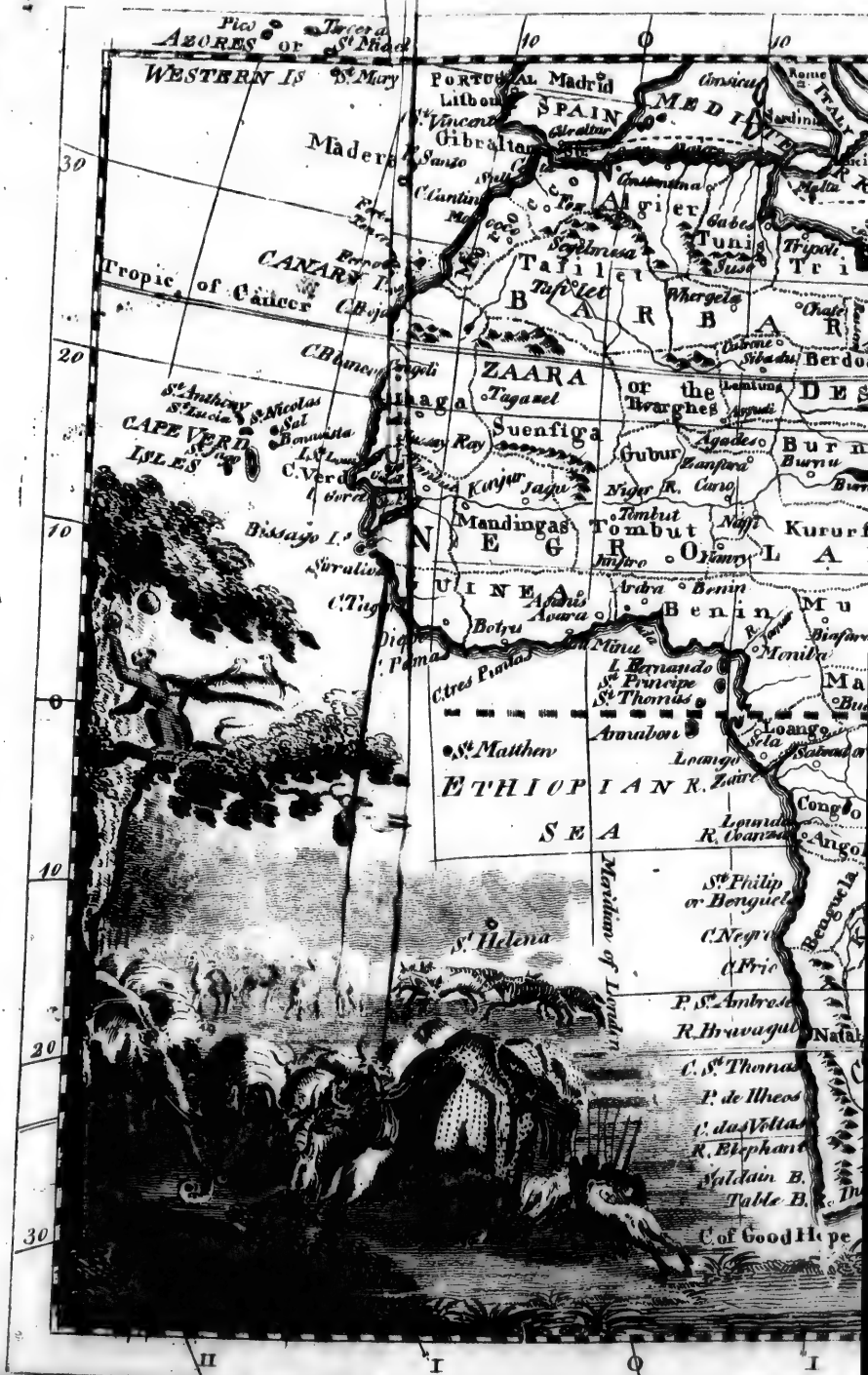
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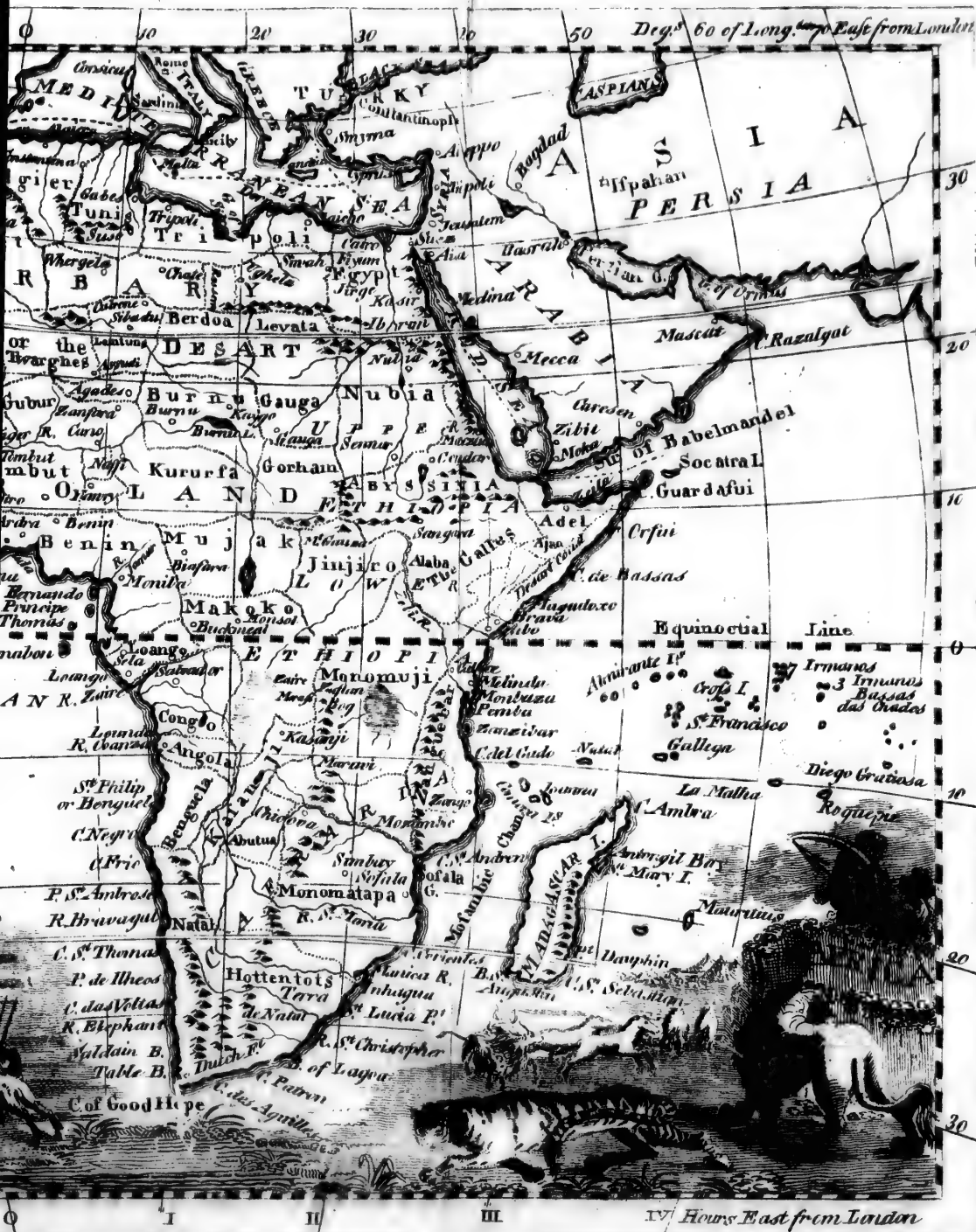
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P A R T VIII.

D E S C R I P T I O N

O F

A F R I C A.

AFRICA is on every side surrounded with water except where it joins to Asia by the isthmus of Suez. The northern parts of this peninsula, were, in antiquity, celebrated as the seats of commerce, sciences and arts. In later Days Christian churches were also gathered here; but the doctrines of Mohammed and various forms of idolatry now pervade the most of this quarter of the globe; and, degrading to human nature, the trafficking in men forms a principal part of the little commerce they carry on.

The greatest part of Africa lies between the tropics. The Ancients imagined this part was not habitable on account of the heat; later discoveries however have shewn their conjectures to be erroneous. Its coasts have been distinctly described by the moderns, but its internal parts are but very little known.

Africa is bounded on the west by the Atlantic Ocean; on the north by the Mediterranean which separates it from Europe; on the east by the Red Sea and Indian Ocean; and on the south by the Southern Ocean. It lies between the parallels of thirty-seven deg. north and thirty-five deg. south latitude, and between seventeen deg. west and fifty one deg. east longitude. It is in length from north to south about four thousand nine hundred, and four thousand five hundred in breadth from east to west.

This quarter of the globe may be divided as in the following table :

Countries.	Length.		Capitals.	Latitude.		Longitude from Greenwich.	
	miles.	adtb.				in Degrees.	in Time.
				D. M.		D. M.	H. M.
Morocco	500	480	Fez	33 40	N.	6 0 W.	— 24 aft.
Algiers	600	400	Algiers	36 49	N.	2 12 E.	0 9 bef.
Tunis	400	250	Tunis	36 40	N.	10 0 E.	— 40 bef.
Tripoli	400	300	Tolemeta	32 50	N.	21 30 E.	1 26 bef.
Barca	700	240	Tripoli	32 53	N.	13 5 E.	0 52 bef.
Egypt	600	250	Grand Cairo	30 2	N.	31 18 E.	2 5 bef.
Bilidulgerid	2500	350	Dara			8 0 W.	— 32 aft.
Zaara	2400	660	Tegessa	21 40	N.	6 0 W.	— 24 aft.
Negroland	2200	840	Madinga				— 38 aft.
Guinea Pro.	1800	360	Benin	7 40	N.	5 4 E.	— 20 bef.
Nubia	940	600	Nubia	17 —	N.	33 0 E.	2 12 bef.
Abyflinia	900	800	Gondar	13 10	N.	35 0 E.	2 20 bef.
Abex	540	130	Doncala	15 6	N.	39 0 E.	2 36 bef.
Loango	410	300	Loango	5 —	N.	11 — E.	— 44 bef.
Congo	540	420	St. Salvador	5 0	S.	15 0 E.	1 0 bef.
Angola	360	250	Loando	8 30	S.	14 30 E.	— 58 bef.
Benguela	430	180	Benguela	11 0	S.	14 30 E.	— 58 bef.
Mataman	450	240	No Towns				
Ancan	900	300	Brava	1 0	N.	45 0 E.	3 0 bef.
Zanguebar	1400	350	Mozambique	15 0	S.	40 — E.	2 40 bef.
Monomo-tapa	960	660	Monomo-tapa				1 18 bef.
Monemugi	900	660	Chicova				1 44 bef.
Sofola	480	300	Sofola	20 0	S.	36 40 E.	2 26 bef.
Ter de Natal	600	330	No Towns				
Caffraria	780	660	C. Good Hope	33 55	S.	18 23 E.	1 13 bef.

ISLANDS of AFRICA.

Names.	Chief Towns.	Claimed by or trading with	Names.	Chief Towns.	Claimed by or trading with
St. Helena	St. Helena	English.	The Azores		
Ascension			or Western		
St. Matthew	Uncoloniz'd		Isles, almost		
St. Thomas	St. Thomas	Portuguese.	equi-dist.		
Anaboa,			from Eu-	Angra	Portuguese
Princes I.	Anaboa	Portuguese.	rope, Afri-		
Fernando.			ca and A-		
Cape Verd	St. Domingo	Portuguese.	merica.		
Islands			In the Indian		
Goree	Port St. Michael	French.	Ocean		
Canaries	Palma, St. Christophers	Spaniards.	Babelmandel	Babelmandel	Open Trade
Madeiras	St. Croix, Funchal	Portuguese.	Zocotra	Calania	Open Trade
			Comora If-	Johanna	Open Trade
			lands		
			Mauritius	Mauritius	French
			Bourbon	Bourbon	French

SECTION

SECTION I.

EGYPT.

EGYPT has the Mediterranean for its boundary on the north, the isthmus of Suez and the Red Sea on the east, Nubia on the south, and the deserts of Barca with the unknown regions of Africa on the west. It lies between thirty and thirty-six deg. east longitude, and between twenty and thirty-two deg. north latitude.

1. *Divisions.*] It is divided into Upper and Lower Egypt.

2. *Climate.*] The almost perpendicular rays of the sun at the summer solstice render the climate excessively hot in that season, and the winters are never severe. The southerly winds are sometimes so sultry here as to oblige the natives to immure themselves in vaults and caves, and sometimes they raise such clouds of sand as to obscure the light of the sun, and produce epidemical disorders; and once in six or seven years the inhabitants are visited by the plague; but this and other diseases generally cease on the coming in of the Etesian or north wind, and the overflowing of the Nile, which celebrated river also enriches the naturally sandy soil of Egypt, by the adventitious earth or mud it deposits on the plains.

3. *Nile.*] The heavy periodical rains which fall within the Tropics certainly occasion the annual inundations of the Nile. This reputed father of rivers is supposed to have its origin in Ethiopia, at eleven or twelve degrees of north latitude, and pursues a course of about fifteen hundred miles for the most part in a northern direction, till it divides into two branches about six miles below Cairo; one of which stretches eastward, and the other westward, emptying themselves into the Mediterranean Sea, at the distance of a hundred miles from each other; it has also several other smaller mouths. The ancients, who were ignorant of the climates in those latitudes, and who had never observed any thing similar to the overflowing of the Nile in other rivers, were involved in labyrinths of doubt and perplexity when they attempted to account for this yearly deluge; but the annual rise is now well known to be not peculiar to the Nile, but common to every other stream that rises or takes its course within the Tropics, whether in Africa, Asia or America.

In the beginning of summer the Nile begins to rise, and during the first week its daily increase is about three or four inches; the next fortnight it is considerably greater in proportion, and thus continues augmenting with increased expedition; and it is not till after four months that the river is reduced to its usual channel. The principal cities and towns in Egypt are built on eminences along the banks of the Nile, and during this period communicate with each other



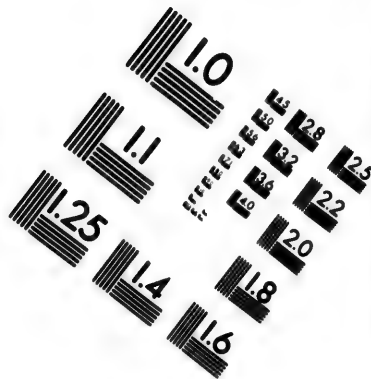
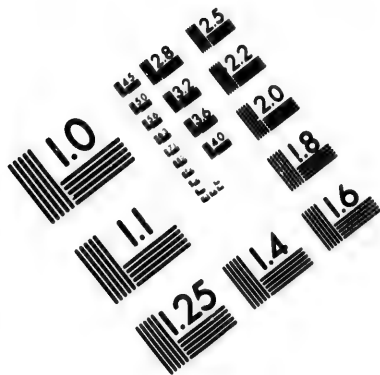
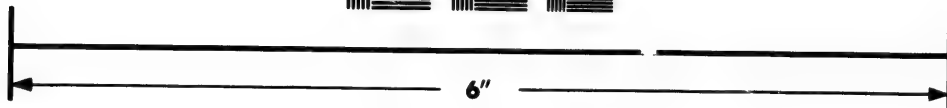
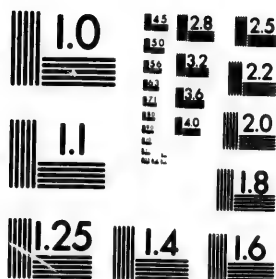


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other by boats. In order to ascertain the daily encrease of the water, the gradual rise of it is very exactly measured, either by wells sunk, or pillars erected and divided for that purpose, and termed Nilometers or Mikyaffes. That in the castle of Old Cairo is a large square reservoir, round which runs a handsome gallery, supported by twelve marble pillars and arches, with a ballustrade for the convenience of those who look into the water. In the midst of the basin, through which a canal from the Nile passes, is an octagonal pillar of white marble, regularly or equally divided; by this the rising of the water is determined, and the public criers daily proclaim it through the capital and other cities.

When the water has risen about thirty-four feet a general festival is observed, the Bashaw attends, accompanied by the great officers of state and an innumerable concourse of people: The dam of the chali or great canal is cut, the water continues to rise, overflows the low country, and filling the canals and lakes prepared for its reception, is distributed over an extent of land where natural inundation would never reach; with incredible labour the water is also raised with buckets and machines from basin to basin, one above another, in Upper Egypt, till having gained the height it is occasionally distributed over the higher lands, and in this laborious task, and in tilling the land, it is said that no less than two hundred thousand oxen are daily employed.

When the Nile rises about forty-nine feet it is a sign of a plentiful year, but if it exceeds that height it is productive of great mischief, sweeping away the houses and drowning the cattle: All this deluge of waters pours, in the Upper Egypt, down the vast chasms of lofty rocks and towering cliffs, roaring, dashing, smoaking, foaming from shelving to shelving of interruptive granite, or precipitates at once, and in one expansive sheet from the brink of its rocky channel to the profound, two hundred feet below, with a noise more tremendous than that of the loudest thunder, raising a smoke or mist which at a distance has all the appearance of a cloud; yet the natives are said to venture on rafts down this astonishing fall, and to amuse themselves by getting within the expansive sheet of water, which being projected with amazing velocity from the ledge above, form over them as it were one large glassy arch.

4. *Produce.*] Egypt, which was formerly the granary of the Roman empire, as it is at present of the neighbouring countries, abounds with wheat, rice, barley and other species of grain. They have generally three crops in the year; the first of lettings and cucumbers, the second of corn, the third of melons; and the fruits common to hot climates, as oranges, lemons, grapes, figs, olives, dates, plantains, plane trees, sugar-canes, &c. thrive exceedingly here. The meadows yield the richest pasture in the world, the grass being usually as high as the cattle, vast numbers of which are fatted in them.

The

The animals of Egypt seem to partake of the fecundity of the soil, for the cows it is said always bring two calves at a time, and sheep year twice in a year, having two lambs at the first and one at the second; a goat is often followed by four kids which she has brought in six months. Oxen abound here. The Egyptian horses are held in great esteem, and a fine breed of asses are likewise found here; also wild asses, camels, antelopes, tigers, hyenas, apes, ichneumons, cameleons, the crocodile, the hippopotamus or river horse, &c. Among the reptiles are the basilisk or cockatrice, and the asp, whose bite stupifies the patient, and throws him insensibly into a deep sleep, which puts a period to his life, as the unhappy Cleopatra voluntarily experienced.

The birds are numerous both wild and tame, particularly ostriches of prodigious size, which if closely pursued will strike back with their legs like a horse, eagles, hawks, a prodigious number of water fowl, as pelicans, flamingos, storks, &c. but those peculiar to the Nile are the ibis, the goose with golden feathers, the rice hen and the fak fak.

5. *Trade.*] Before the navigation to India was discovered by the Europeans, this country was the universal mart for the produce and manufactures of the East, but that branch of trade is now greatly declined; most of the European powers however have consuls at Egypt. Several English vessels arrive annually at Alexandria, some of which are laden on account of the owner; but the principal part are freighted by the Jewish, Armenian and Mahometan traders.

They export great quantities of unmanufactured as well as prepared flax, cotton and leather of different kinds, also a great variety of medicinal roots and drugs for dying. Their imports are Italian silks, English cloth, tin and lead, French trinkets, Asiatic silks, carpets and spices, and a variety of articles from Barbary. The traffic by land is chiefly carried on by caravans.

6. *Curiosities.*] It would require volumes to describe the astonishing remains of ancient temples, palaces, columns, statues, paintings, &c. that are so profusely scattered over a great part of this once renowned country. Those surprising monuments of antiquity, the Pyramids of Egypt, which baffle the researches of the deepest antiquary to fix with precision their origin, are situated near Cairo, at the foot of those mountains which separate Egypt from Lybia. One of the largest of these is five hundred feet high, and its base above six hundred feet square. The external part is composed of great square stones cut from the rock which lies along the ancient course of the Nile, whose original bed is still visible; it is hollow within, and the apartments are lined with highly polished granite: It is ascended by circular steps on the outside, and the entrance into it is at the height of about forty-eight feet, where travellers discharge pistols to dislodge the bats which frequent these places in great numbers. On the top of this pyramid the adventurers who have ascended it have carved their names. At some distance from this is the celebrated

celebrated Sphinx, of prodigious dimensions, and cut out of the solid rock. The Mahometans have battered and disfigured this image; it is hollow within, and from hence it has been supposed the priests bawled out their oracular answers.

One of the pyramids, about one hundred and fifty feet high, is built with bricks of uncommon dimensions, said to have been formed of the mud of the Nile mixed with chopped straw, and hardened by the sun. From the nature of the materials, it is conjectured that the enslaved Israelites were the constructors of this stupendous work; their own historian Josephus informing us, that when the memory of Joseph's services was extinguished, and the kingdom passed to another family, the Jews were treated with great rigour, and compelled to cut canals for the Nile, build walls, and erect pyramids. Near this are the famous catacombs of Egypt: In these repositories of the dead; embalmed bodies or mummies, swathes or bandages, and some entire coffins of sycamore or Pharoah's fig-tree, are still to be seen, which have certainly continued in these subterraneous chambers upwards of three thousand years.

The famous labyrinth near the banks of the Nile, containing twelve palaces and one thousand houses, all of marble, and mostly underground, with but one entrance to it, and full of intricate turnings and windings; the very capacious Lake Mœris, dug in order to prevent the irregularities of the Nile; the vast and numerous grottos in a mountain near Ofsut cut out of the rock, one of which is large enough to contain six hundred horse; at Alexandria, Pompey's pillar, and the obelisk of Cleopatra, with innumerable other antiquities, are all of them reckoned among the curiosities of this country.

7. *Language, Learning, Profession.*] The Coptic, which was the original language of Egypt, was succeeded by the Greek when the kingdom was conquered by Alexander. The Greek continued to be spoken till the Arabs took possession of Egypt, and ever since that period the vulgar Arabic has been the common language; the Coptic and modern Greek however still continue in use.

Learning is at a very low ebb in this ancient seminary of the sciences; the native Mahometans and Arabs are as ignorant as can well be conceived; and the little learning of the country, which seems to be confined to reading, writing and book-keeping, is entirely in the hands of the Coptics, who on this account meet with considerable encouragement from the rich and great.

The Coptics profess Christianity; the adherents of the Greek church are likewise pretty numerous, as are also the Jews.

8. *History.*] Egypt is one of the oldest kingdoms in the world. In remote antiquity it underwent many revolutions from its neighbours the Canaanites and Ethiopians, and even from wandering tribes of Scythians; it was successively subjected to the Assyrians, Babylonians, Persians, Macedonians, Romans and Saracens, and Mamelukes, and at this day it acknowledges the government of the Porte.

SECTION

S E C T I O N II.

BARBARY.

Barbary, in a general view, extends from the Atlantic Ocean to Egypt near two thousand miles in length, and from the Mediterranean sea to the Lybian deserts seven hundred and fifty miles, and comprehends in succession from west to east the countries of Morocco and Fez, which form one distinct empire, and the states of Algiers, Tunis, Tripoli and Barca, which form one great political confederacy under the Porte or Turkish government, however independent they may be on each other in their internal policy and government.

1. *Divisions.*] In Morocco empire are the towns of Morocco, Fez, Maquinez, Taradant, Tangier, Sallee, Ceuta, Tetuan, Arzilla and Santa Cruz. In Algiers Tremesen, Oran, Algiers, Bugia, Constantina: In Tunis, Carthage, Tunis, Pescara: In Tripoli, Tripoli: In Barca Defart, Docra.

2. *Rivers, Mountains, Climate.*] The coasts of Barbary are well watered by several copious streams, which have their source among the mountains of Atlas, on the tops of which snow is constantly seen during the whole year. The climate is generally temperate, but during the summer the heats are sometimes excessive.

3. *Soil, Plants, Animals.*] The soil is extremely fertile in corn and pasture, and produces dates, figs, grapes, olives, almonds, apples, pears, cherries, plumbs, citrons, lemons, oranges, pomegranates, with plenty of roots and herbs in their kitchen gardens; and excellent hemp and flax grow on the plains. Algiers produces salt petre, and great quantities of salt, and lead and iron are found in several parts of Barbary. Fish and fowl abound here. Their other animals are a fine breed of horses, camels, dromedaries, asses, mules, cows, sheep, goats, hares, rabbits, lions, tigers, leopards, monstrous serpents, and all kind of reptiles, bears, porcupines, foxes, apes, ferrets, weasels, moles, cameleons, &c.

4. *Curiosities.*] Salt mountains and saline lakes, hot springs and sulphureous caverns, are the natural curiosities of this country. Ruins of ancient cities, temples, altars, amphitheatres, aqueducts, reservoirs, baths, triumphal arches, mausolea, columns and statues, are among the antiquities of this country, and many of the modern buildings are spacious and splendid, covered with lofty roofs supported by pillars of marble. Spacious courts adorned with large galleries, fountains, marble basons and fish ponds, often distinguish the houses

houses of the affluent, as well as the colleges, mosques, baths and hospitals, which are pleasantly shaded with orange and lemon trees, loaded with fruit throughout the whole year.

5. *Manufactures, Commerce.*] The internal trade of Barbary is carried on by caravans; their exports are manufactured leather, fine mats, handkerchiefs, carpets, elephants teeth, ostrich feathers, copper, tin, wool, hides, honey, wax, fruits, gums and drugs. In return for their exports, the Europeans furnish them with timber, artillery, gunpowder, and various manufactures. Commercial affairs are generally transacted by the Jews and Christians who have settled among them; and the latter have established silk and linen manufactures here.

6. *Profession, Language.*] The doctrines of Mahomet is the national profession. The language varies greatly; in some of the inland countries an ancient African language is still in use; in the maritime countries and sea-port towns a corrupt Arabic is spoken; and that medley of languages which is spoken in many of the ports of the Mediterranean, and known to the sailors by the name of Lingua-Franca, is also used here.

7. *Literature.*] Learning, as may well be presumed, is at a very low ebb in Barbary, even some of their governors have been incapable of reading and writing. There are however several colleges and schools in their cities and towns, in which the doctors of the laws, and other literati, are maintained, some at the public expence and others by exercising the mendicant profession; the veneration in which they are universally held never failing to ensure their success. The Koran is esteemed the perfection of all human learning, and when once the student has gone through it, he is superbly dressed, placed on horseback, and conducted in triumph through the town by his school-fellows.

8. *History.*] The city of Tunis in Barbary stands not far from the Place where stood ancient Carthage, a city built by Queen Dido, who brought a colony of Tyrians hither in 883 before the Christian æra. The Carthaginian republick soon grew formidable to all its neighbours, and extended its commerce and empire, till clashing with the Romans, it was entirely destroyed by them at the conclusion of the third Punic war in 148 before the Christian æra. It continued a part of the Roman empire till 439, when it was taken by the Vandals; and in 534 it was retaken by the Greek emperors. In 644, this state, together with the rest of Barbary, was subdued by the Saracens, whose conquests extended to most parts of Spain; but being driven from thence, and nearly falling victims to the Spaniards, they in the sixteenth century implored the protection of the Turkish admiral, Barbarossa, who freed them from the Spanish yoke, but imposed his own in its place. The power of the Turks in these states, however, is very much decreased, and in some parts it is even scarcely nominal.

SECTION

S E C T I O N III.

WESTERN PARTS OF AFRICA.

1. *Zaara.*] Zaara or the Defart, and the adjoining countries of Bilidulgerid on the north, and Tombut on the south, are much involved in geographical uncertainty. They are altogether bounded on the north by Barbary, on the west by the Atlantic, on the south by Negroland, and on the east by Nubia and Egypt; comprehending an immense extent of burning sands, whose sterility no labour can overcome, unless near the few rivers and springs which visit this parched land. The soil of Zaara and Bilidulgerid, even where capable of cultivation, barely produces corn, rice and millet, sufficient for the exigencies of its scanty inhabitants. Dates, indeed, are in general plentiful, with some other fruits, on which the natives principally subsist. Descendants of various tribes of Arabs and Berebers, or the original natives of Barbary, are the inhabitants of this dreary country; and the history both of themselves and their land is pretty much the same with that of Arabia and its roving tribes. Lions, tigers, wolves, and other savage animals, add to the horrors of this inhospitable land, through which, however, caravans annually pass between Barbary and Nigritia. The roving natives of this desert land, for want of other marks, are under the necessity of observing the stars in their excursion, and can talk with tolerable precision about their number, situation and divisions; and in Bilidulgerid there are seminaries for the instruction of youth, who, according to their abilities, are raised to the rank of priests or judges.

Tombut is well watered by canals cut from the Niger, as well as by a number of springs which fertilize the soil and render it productive of all kinds of grain, and almost every necessary of life. The king of this country possesses prodigious quantities of gold, and his whole court is reported to eat out of vessels of that metal.

2. *Negroland.*] The extensive country of Negroland or Nigritia, includes the entire space between Zaara and Guinea, comprehending many and various nations. The parts that we are acquainted with are those that lie on the banks of the navigable rivers which have been visited by Europeans.

The principal rivers in Nigritia are the Scherbro, Sierra-Leona, Sestos, Gambia and Niger or Senegal; they abound in fish, but are greatly infested with alligators. The banks are adorned with beautiful trees swarming with birds of the most lively plumage, and luxuriant forests teeming with life in various forms; elephants, tigers, lions, apes and serpents of astonishing dimensions; deer, hogs,

hogs, hares, &c. The gum forests are immense on the sides of the Senega; the beautiful islands of Sierra Leona are covered with palms, from which the natives make great quantities of wine; rice and millet grow in such quantities on the sides of the rivers as amply to supply the natives with food; lemons, oranges, bananas and citrons arrive at vast perfection; and in the interior parts of the country ananas, Indian figs, water melons, white prunes, cassava, and different sorts of pulse, are produced in the greatest abundance. The doctrines of Mohammed generally prevail in this country; and in some parts there are seminaries where the Arabic is taught. The Marabuts are a distinct order of men, whose dignity descends to all their male off-spring, forming a numerous ecclesiastical body, and having vast revenues appropriated for their maintenance. They spend much of their time in the tuition of their children, whom they carefully instruct in the principles of the Levitical law; which, next to the doctrines of the Koran, is treated with the greatest respect. The great volume of the Marabut institutions is written in a language entirely different from that of the vulgar, and is supposed to be a corrupt Hebrew or Arabic. Some of the Marabuts travel from province to province instructing the natives; all places are open to them, and during the rage of the most sanguinary contest they pass unmolested through the fields of war.

There are nations in Negroland of whom the Europeans do not even know the names; among those whom they are acquainted with, and who use different tongues or dialects, are the Mundingoes, the Jalloiffs, Pholeys and Portuguese; which last mentioned people, after conquering this country, have so intermingled with the original natives and lived so much after their manner, they have now nearly lost every trait of the particular European visage and complexion, though they still retain a sort of Portuguese dialect and some rude notions of the Christian profession.

Manufactures and arts are little practised here; smiths and cutlers are the principal mechanics: the women spin and weave a little cotton.

The habitations of the negroes in general are small low conical huts, with no other light than what is admitted at the door. The towns are always raised in a circular form, with spiral streets; hence in a village of inconsiderable extent a person is often obliged to walk a great way, when by short intersecting streets a few paces would suffice. Some negroes of distinction, however, particularly the descendants of the Portuguese, affect the European stile of architecture, and build houses tolerably well adapted to the climate.

The Europeans have many settlements on the rivers of this country: Here they procure vast quantities of gums, bees wax, gold, elephants teeth, skins of wild beasts, &c. and here it is a melancholy truth they carry on the iniquitous traffic of dealing in men.

3. *Guinea.*] South of Negroland lies Guinea. This vast country in its utmost extent comprehends a great number of kingdoms and nations: it lies between nine deg. eighteen min. north, and sixteen deg. forty-five min. south latitude, extending in length about two thousand five hundred miles along the sea coast; but its breadth cannot be accurately determined; its boundaries on the east being undefined and blended in uncertainty together with the interior and unknown regions of Africa, which lie round the mountains of the moon in the centre of this quarter of the globe.

Guinea is divided into the Upper and the Lower.

In Upper Guinea on the north are the grain coast, the tooth or ivory coast, the gold coast, the slave coast, and the kingdom of Benin.

South of the line the Lower Guinea comprehends the kingdoms of Loango, Congo, Angola and Benguela.

Guinea, in its natural history, and its intercourse with Europeans pretty much answers the description just given of Negroland, and both these fertile lands, in the midst of their spontaneous profusion, are in common with other tropical countries exposed to excessive heats, to tornadoes, and other tempests.

Various forms of idolatry and the grossest superstitions are said to prevail throughout this extensive country; the natives in some parts worshipping snakes, goats, tigers and other animals.

4. *Mataman.*] Between the most southern extremity of all Guinea and the Cape of Good Hope lies Mataman or Matapan, an extensive arid waste, not containing any towns, and having very few inhabitants. If we are to believe the Portuguese writers, who about two hundred years ago pretended to describe this country, here were nations of Amazons and Cannibals perpetually at war with each other, in whose shambles the limbs of the captives were exposed to sale, and who buried their children alive, and recruited their armies with the stoutest of their prisoners. To raise reports, however, of this kind, and thereby to deter adventurers from penetrating into unknown countries for gold or other treasures, seems sometimes to have been the policy of people less cunning than Europeans.

SECTION IV.

EASTERN PARTS OF AFRICA.

All the rest of Africa lies south and east of the countries already described: as the greatest part of it is but little known to Europeans, geographical precision can hardly be expected in laying out its divisions; it is sometimes all included under the general name of Ethiopia, sometimes it is divided into Caffraria and Ethiopia, and again it is reduced into divisions more minute.

Beginning at Egypt on the north, already described, the Upper Ethiopia lies towards the south, and is generally divided into Nubia, Abyssinia and Abex. It is bounded on the north by Egypt, on the east by the Red Sea, on the south it joins with the Lower Ethiopia or Caffraria, and on the west with the undiscovered eastern confines of Zaara, Negroland and Guinea.

1. *Nubia.*] Nubia affords gold, ivory, roots and drugs, with a variety of medicinal plants; the inhabitants in general profess Mahometanism, but have very few marks of religion among them. In the few villages of this region they apply themselves to agriculture; but the greatest part of them indulge in perpetual indolence, and like the lions and other savages of this inhospitable country, wake to plunder and destroy at the keen impulse of hunger. It is nowever, that there are among them some Christians and Jews, as well as Pagans and Mahometans.

2. *Abex.*] Abex, which is only a narrow slip of land extending along the western shore of the Red Sea, is sandy and barren, the air sultry and unwholesome, and the heat so intense that it produces few necessaries of life; lions, tigers and other beasts of prey roam the wild waste unmolested, besides which there are but few animals, except deer and sheep of a prodigious size.

The inhabitants are a mixture of Egyptians, Arabs and Caffres. The Turks having seized all the bays and ports of Abex from Egypt to the Streights of Babelmandel, the principal of which are Suaquam and Arquico; the Abyssinians are hereby shut out from any communication with the Red Sea, and on the other sides they are surrounded by mountains.

3. *Abyssinia.*] Abyssinia, in the inland parts however is said to be exceedingly fertile; the Nile, which is supposed to have its source in this country, periodically overflows and enriches its plains; it is plentifully stocked with animals both wild and tame; the oxen are so large that some have mistaken them for elephants with horns, and the camelopardus is much taller than an elephant, but of a very slender make; its locusts are large and excellent eating. The Turks annually export great quantities of rice from hence, particularly

cularly at the time of the pilgrimages to Mecca, Arabia not affording provision sufficient for their sustenance; they also exchange their silks, stuffs, callicoes, linens and carpets with the Abyssinians.

The emperor of Abyssinia, as well as his subjects, constantly living in tents, his camp always occupies a very large space of ground, and from the regular distribution of the streets, the great variety of tents, streamers and other ornaments, and the great number of illuminations at night, makes a very grand appearance, exhibiting the view of a vast open and regular city; in the centre or other conspicuous part of which stands the imperial pavillion, greatly exceeding the rest both in magnitude and beauty.

The Abyssinians profess Christianity, and are so hospitable to travellers that inns would be superfluous; but the emperor allows himself a plurality of wives, and he is treated with a submission which is hardly clear of idolatry.

The Gallas are a people inhabiting their borders, and subsisting chiefly by the sword; they are desperate in battle, but stedfast in their engagements.

In remote antiquity the Ethiopians contested with the Egyptians, and they ravaged each others territories. The Persians under Cyrus, and afterwards the Romans, made conquests in this country, but these were not lasting. Since these times it has undergone some internal revolutions, but continues a kingdom to this day.

4. *Africa on the South.*] South of Abyssinia lies Monoemugi, an extensive inland country, abundantly rich in palm wine, oil, honey, and gold; the climate is said to be unfavourable to health, the air sultry and hot, the inhabitants robbers, many of them cannibals, and gross idolaters, offering up human victims as sacrifice. Geographers, however, are much in the dark respecting this country.

The countries on the south east coast of Africa are in succession from the Streights of Babelmandel, Anian or Ajan, Zanguebar, Monomotapa and Sofola, where Solomon's fleets are supposed to have traded; in these rich but torrid countries, the Portuguese have extensive settlements and possessions; as have the Dutch on the south in Caffraria and Terra de Natal.

5. *Islands.*] Madagascar is the largest of the African islands; its climate is very healthy, it abounds in corn, several kinds of vegetables, vines, fruit trees, sugar, honey, gums, precious stones, different kinds of ore, cattle, fowl and fish. The French had once settlements in this island, but in 1651 they were driven out by the natives, who have ever since kept it in their own possession.

The Azores, though now well peopled and very fertile, were found desitute of inhabitants when they were first discovered in the middle of the fifteenth century; these islands have frequently suffered from violent earthquakes, as has Teneriffe, one of the Canaries, by eruptions from the Pike.

The African islands in the Atlantic are some of them celebrated for their wines, which also bear their names, as Madeira, Canary, &c.

P A R T IX.

D E S C R I P T I O N

O F

A M E R I C A.

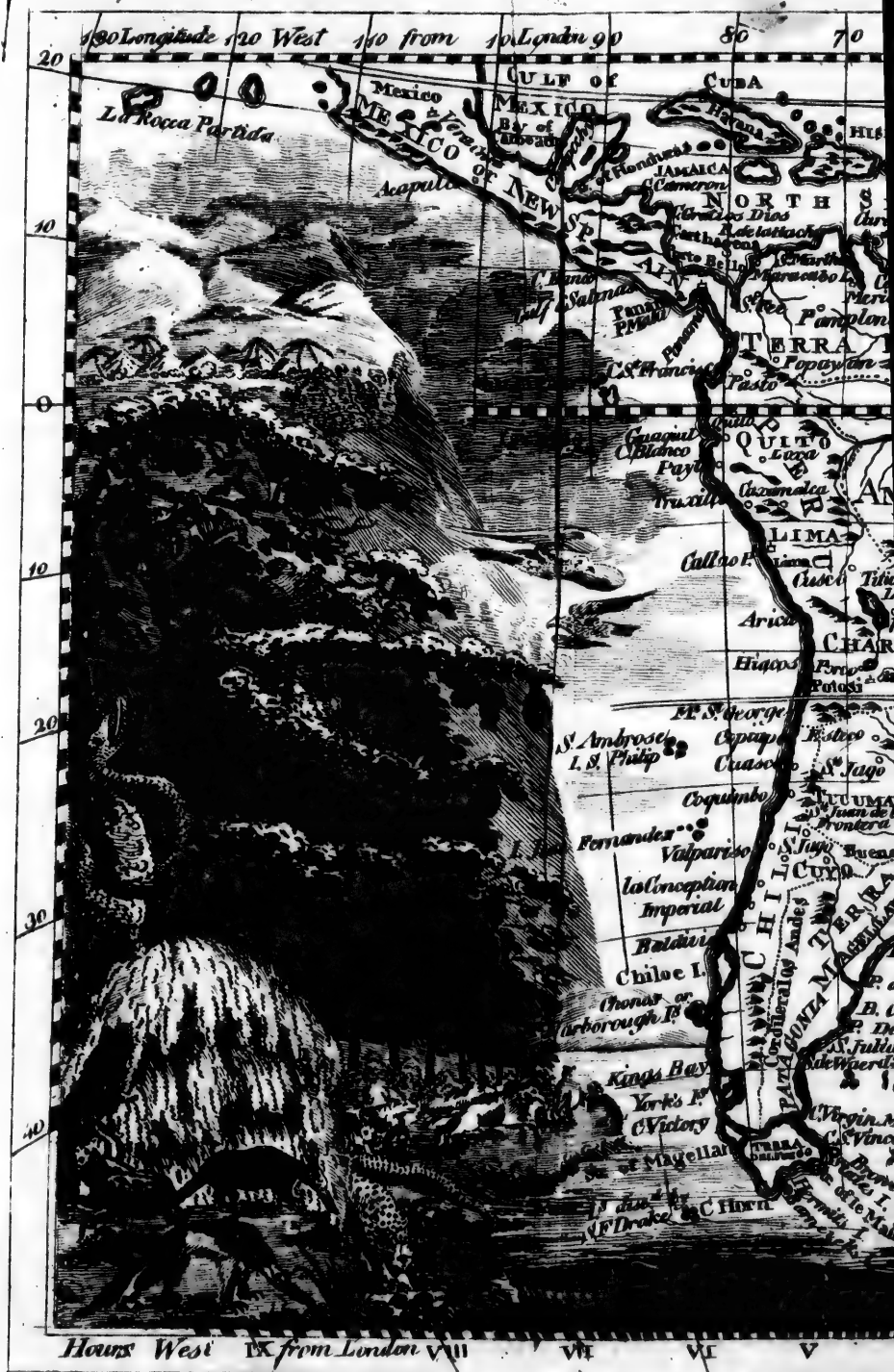
AMERICA is the last but most extensive quarter of the globe. It was in the latter end of the fifteenth century when the Portuguese had discovered the passage to India by the Cape of Good Hope, and thus deprived the Italian States of those lucrative emoluments which they obtained in furnishing Europe with the costly articles of India, which they received by way of the Red Sea, that America was unfolded to the view of the European States. At that time they generally acknowledged the supremacy of the Pope. The Roman Pontiff was unacquainted with the figure of the earth, and had granted a bull to the Portuguese, entitling them to all the lands, islands, &c. they had or should discover to the eastward of the meridian of the Azores. Christopher Columbus, a native of Genoa, proposed to his countrymen to evade the force of the bull, and to retrieve a part of their lost traffic, by sailing to India by a western course. They were not better geographers than the bishop of Rome; they treated his schemes as the reveries of a madman. Disappointed here, he applied successively to the courts of Lisbon, Paris and London, but without success. His last resource was to the court of Spain; here his proposals were received with candour, but with caution. At last, after about eight years attendance, by the particular countenance of the queen Isabella, who raised the money necessary for the design on her own jewels, in 1492, with a fleet of three ships, and the title and command of an Admiral, Christopher sailed from Spain.

Without charts to direct him, or lights from former navigators, without experience of the winds or currents peculiar to that prodigious tract of sea which lay before, he launched at once into the boundless ocean. Anxious, no doubt, were his own feelings on this adventurous voyage; his companions were discouraged, and began to be mutinous. To encrease their despondence, it was observed

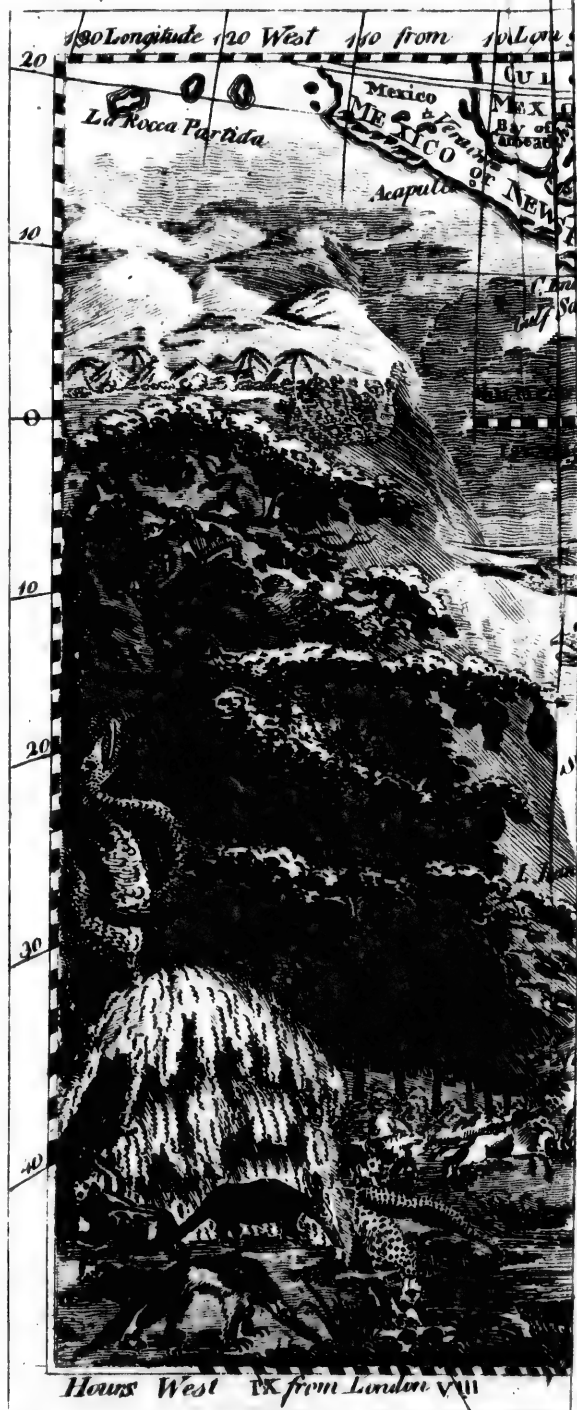
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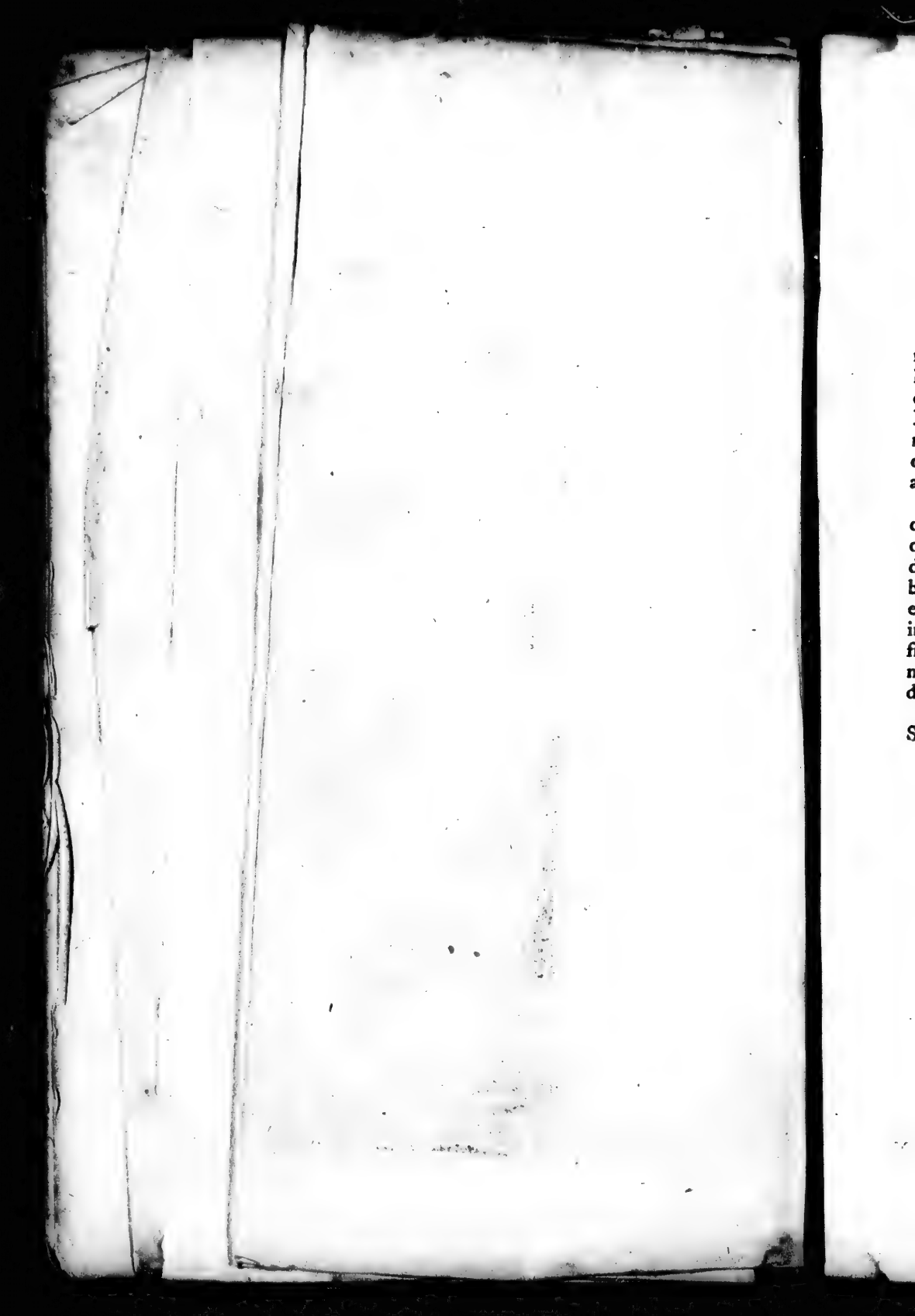












served that the compass varied from its former position. The pilots were struck with terror. He still had hopes, and for a while endeavoured to appease and encourage his fellows with the accidental appearances of land birds and floating sea weeds. At length, when hope seemed ready to leave them all, when the crew began to insist on his returning, and even threatened to throw him overboard, after a voyage of thirty-three days they discovered first the Bahama islands, and afterwards Hispaniola, which, in contradistinction from the India of Asia on the east, they called the West Indies.

In a subsequent voyage this great adventurer discovered the American continent. For a while caresses were heaped upon him, but he lived to be treated like a traitor in the very country he had discovered, and was ignominiously sent over to Europe in chains. Here, however, he was honourably acquitted, and had the happiness to reflect that his adventures had been untainted with cruelty or plunder, vices which so horridly deformed the acts of succeeding adventurers.

The extensive continent of America reaches from the fifty-sixth degree of south latitude to the impenetrable regions of ice and snows of the northern frigid zone, where it nearly extends through every degree of western longitude from London. On the east it is bounded by the great Atlantic Ocean; its western shores and southern extremity are washed by the Pacific and vast South Sea. It is in length from north to south about nine thousand miles, and varies from its greatest breadth of three thousand six hundred and ninety miles to that of sixty at the Isthmus of Darien, where America is divided into north and south.

The following tables contain the divisions of both North and South America.

Countries.	Length. miles	Breadth. miles	Chief Towns.	Latitude. D. M.	Longitude from Greenwich.	
					in Degrees. D. M.	in Time. H. M.
NORTH-AMERICA.						
New Britain or Esquimaux, Greenland, and the western parts, but little known.						
Canada	800	200	Quebec	46 55 N.	69 53 W.	4 39½ aft.
Nova Scotia	350	250	Halifax	44 45 N.	64 30 W.	4 18 aft.
Amer. States	1390	700	Boston	42 25 N.	70 37 W.	4 42½ aft.
E. Florida	500	440	St. Augustine	8 30 N.	81 10 W.	5 25 aft.
W. Florida			Pensacola	30 32 N.	87 20 W.	5 49 aft.
Louisiana bounds undeter.			New Orleans	30 0 N.	87 5 W.	5 48 aft.
New Mexico, and California	2000	1600	St. Fee	35 32 N.	105 0 W.	7 0 aft.
Mexico, or New Spain	2000	600	Mexico	19 54 N.	100 5 W.	6 40 aft.
SOUTH-AMERICA.						
Terra Firma	1400	700	Panama	8 48 N.	80 28 W.	5 22 aft.
Peru	1800	500	Lima	12 1 S.	76 49 W.	5 7 aft.
Amazonia	1200	960	Little known to Europeans.			
Guiana	780	480	Surinam	6 0 N.	55 30 W.	3 42 aft.
			Cayenne	4 56 N.	52 15 W.	3 29 aft.
Brazil	2500	700	St. Sebastian	22 59 S.	44 16 W.	2 57 aft.
			St. Salvadore	12 0 S.	38 0 W.	2 32 aft.
Paraguay, or La Plata	1500	1000	Assumption	34 10 S.	60 40 W.	4 3 aft.
			Buenos Ayres	34 35 S.	58 31 W.	3 54 aft.
Chili	1200	500	St. Jago	33 40 S.	77 0 W.	5 8 aft.

Terra Magellanica or Patagonia, not colonized by Europeans, 700 L. 300 B.

PRINCIPAL NORTH AMERICAN ISLANDS.

Names.	Chief Towns.	In Possession of	Names.	Chief Towns	In Possession of
Newfoundland	Placentia	English	Tobago		French
Cape Breton	Louisbourg		Cuba	Havannah	Spaniards
St. John's	Charlotte Town		Hispaniola	St. Domingo	Spain & France
Bermuda Ids.	St. George		Porto Rico	Porto Rico.	Spaniards
Bahama Ids.	Nassau		Trinidad		Spaniards
Jamaica	Kingston.		Margarita		Spaniards
Barbadoes	Bridgetown		Martinico	St. Peter's.	French
St. Christopher	Basseterre		Guadeloupe	Basseterre	French
Antigua	St. John's		St. Lucia, St.		French
Nevis	Charles Town		Bartholomew		French
Montserrat	Plymouth		Defkada and		French
Barbuda			Marigalanta		French
Anguilla			St. Eustatia		Dutch
Dominica			Curassou		Dutch
St. Vincent.	Kingston		St. Thomas		Danes
Granada	St. George		St. Croix	Basse-End	Danes

SECTION I.

AMERICAN ISLANDS.

1. *West Indies.*] The West Indian islands was the first part of America discovered by the Europeans. They are situated in a large gulf called the Caribbean Sea, between the continents of North and South America, stretching from the coast of Florida to the river Orinoco, and are divided between five European nations, viz. the English, Spaniards, French, Dutch and Danes.

The climate, allowing for those accidental differences which the several situations and qualities of the land themselves produce, is nearly the same throughout all the West India islands lying within the tropics. They are exposed to a heat which would prove intolerable, did not the trade wind, as the rising sun gathers strength, blow on them from the sea, and refresh the air in such a manner as to render the noon-day heat less intense than might be expected. On the other hand, as the night advances, a breeze begins to rise, which blows as if it proceeded from the central point of each island to all quarters at one and the same time. Vast bodies of clouds also screen the inhabitants from the scorching rays of the vertical sun.

Their rains are different from ours; they are rather floods than showers. The waters pour down from the clouds with amazing impetuosity; the rivers swell in a moment; new brooks and lakes are formed, and in a short time all the low country is totally under water. These rains mark out the seasons in the West Indies, where the whole year is properly a continued summer. The trees are always covered with leaves; frosts and snows are unknown; and indeed the same description may be applied to all the torrid zone.

The consequences of these storms, however, are trifling when compared to those that attend the hurricanes, to which this part of the world is very subject; by these the assiduous labour of many years is often destroyed in a moment. The hurricane is a violent gust of wind, rain, thunder and lightning, attended with a dreadful swelling of the sea, and sometimes with an earthquake. As a prelude to the approaching havoc, the astonished planter sees whole fields of sugar-canes whirled into the air, and scattered over the face of the adjacent country. The strongest trees of the forest are torn up by the roots, and driven about like stubble; the wind-mills are swept away in a moment; their utensils, their fixtures, the ponderous copper boilers and stills of several hundreds weight are wrenched from the ground, and battered to pieces; their houses

fail to give their wonted protection, the roofs are torn off, and the rain rushes in with a violence almost irresistible, or perhaps all is tumbled down together in one promiscuous ruin.

The inhabitants have some forewarning of this uproar of the elements. Thus, if at the change of the moon the sky appears very turbulent, the sun redder than at other times, a dead calm succeeds instead of the usual breezes; the hills are clear of those clouds and mists which usually hover about them; if a hollow rumbling sound, like the rushing of a violent wind, is heard in the wells and clefts of the mountains, the stars at night appear larger than usual, and surrounded with a sort of bur; the sky in the north-west has a black and menacing appearance; the sea emits a strong smell, and rises into vast waves, often without any wind; the wind itself forsakes its steady stream from the east, and shifts to the west, blowing violently and irregularly at intermission. These signs predict that a hurricane will happen at the succeeding full. Nearly the same signs happen at the full, before a hurricane comes on at the change; and by these indications the planters often secure some part of their effects, together with the lives of themselves and those of their families.

Sugar and rum are the staple commodities of the West Indies. The sugar is the essential salt of the plant, extracted from the juice by boiling, scumming and chrysalization. The rum is distilled from the molasses, and the dregs of the juice, after the salt is purified.

Sugar was unknown to the old Greeks and Romans, though it was made in China in very early times, and from that country the Europeans obtained their first knowledge of it. The Portuguese were the first who cultivated the sugar-cane, and their first plantations were in the Madeira islands, but afterwards removed to Brasil, and since diffused over the different islands of the West Indies. The variety of tropical fruits flourish here, as lemons, oranges, limes, citrons, dates, pomegranates, tamarinds, grapes, pine-apples, bananas, coffee, guavas, plantains, cocoa-nuts, and the cacao or chocolate. They produce a variety of fine woods, dyes, gums, drugs, spices, even nutmeg and cinnamon trees are said to be found in the West Indies; a variety of other vegetables also, as indigo, tobacco, cotton, silk-grass, &c. grow here.

The animals are horses, asses, mules, black cattle, goats, sheep and hogs, opossums, racoons and rabbits. Of wild and tame fowls there is a great variety, as ducks, teal, widgeons, geese, turkeys, pigeons, guinea-hens, plovers, flamingoes and snipes; various kinds of parrots, parroquets, and the beautiful humming-bird. The bays and rivers abound in turtle, and a variety of fish, as the mountains do in serpents and other noxious animals.

Sugars, rum, cotton, indigo, chocolate, coffee, dying and physical drugs, spices and hard woods, form the principal exports of these islands. From the neighbouring continent they import lumber and provisions;

provisions ; from Europe, manufactures ; wines from the African islands ; and here the impious practice of trafficking in men is warranted by human laws, and carried on with complicated circumstances of cruelty ; and by far the greatest number of the people in the West India islands are as beasts of burthen to the remaining few, and treated by their lordly masters worse than horses are.

2. *Bahamas.*] The Bahama islands, which are said to be five hundred in number, though some of them are merely rocks, lie to the south of Carolina, between twenty-one and twenty-seven deg. north latitude, and seventy-three and eighty-one west longitude. They extend along the coast of Florida, as far as the Isle of Cuba. Twelve of them, however, are large and fertile, but except Providence isle they are almost uninhabited.

3. *Bermudas.*] The Bermudas or Summer Islands, which lie in the vast Atlantic Ocean, lie about three hundred leagues east from Carolina in thirty-two deg. north latitude, and in sixty-five deg. west longitude, are a cluster of small islands, said to be four hundred in number, and containing collectively only about twenty thousand acres. The air is extremely salubrious, and the beauty and richness of the vegetable productions are as great as can well be conceived. Though the soil is excellently adapted to the cultivation of vines, the chief employment of the inhabitants, who are supposed to be near ten thousand, consists in the building and navigating little sloops and brigantines, which they occupy principally in the West Indian and North American commerce. These vessels are equally remarkable for their swiftness, and the durability of the cedar wherewith they are constructed.

St. George, the capital, is situated at the bottom of a haven in an island of the same name ; it has seven or eight forts, mounting seventy pieces of cannon, contains above a thousand houses, a handsome congregation-house, and other elegant public buildings.

4. *Newfoundland, &c.*] The islands of Newfoundland, Cape Breton and St. John lie at the mouth of the great St. Laurence river, and are celebrated for the prodigious shoals of fish that surround their coasts. The forests are extensive, and the animals various and many. Newfoundland is watered by many spacious rivers, and furnished with several large and excellent harbours. About five thousand Europeans constantly reside on the island. The chief towns are Placentia, Bonaville and St. John. The Indians or natives are said to be a gentle, mild and tractable people, easily gained by civility and good usage. The coasts are extremely subject to fogs, frequently attended with storms of snow and sleet, and the beauties of a serene sky are seldom beheld in this island. The soil in most parts of the island is rocky and barren, but in some of the vallies on the southern coast deep and rich. The vegetable productions are but few : A kind of wild rye is found in some of the vallies ; strawberries and raspberries are found in the woods, which also supply a variety of excellent timber. But the island is chiefly valued

valued for its great cod-fishery on those shoals called the banks of Newfoundland. In this branch of commerce upwards of three thousand sail of small craft are annually employed; on board of which, as well as on shore for the purpose of curing and packing the fish, upwards of ten thousand hands are employed. This fishery is supposed to increase the national stock upwards of 300,000*l.* annually, which is remitted to England in gold and silver for cod sold in the North, in Spain, Portugal, Italy and the Levant.

Very profitable fisheries are likewise carried on along the coasts of New Scotland, New England, and the isle of Cape Breton.

S E C T I O N II.

BRITISH AMERICA.

The vast continent of America extending from the impenetrable frozen regions of the arctic to a high latitude in the southern hemisphere, as it experiences all the varieties of climate which the earth affords, its soils are various, and it produces most of the metals, minerals, herbs, fruits and wood, to be met with in the other quarters of the globe, and many of them in the greatest quantities and perfection.

Its mountains, lakes and rivers are the largest in the world.

To begin on the north with this most extensive quarter of the globe, the parts of it which lie within the Arctic circle are very little known, few European adventurers having penetrated so far, their farthest discoveries have never ascertained whether Greenland is an insular country, or a part of this vast continent: Greenland has already been described as a part of the territories of Denmark.

1. *Divisions.*] The continental territories of the English in America comprehend New Britain or the country of the Esquimaux, Canada or the Province of Quebec, and Nova Scotia or Acadia. On the east and south they are bounded by the Atlantic and the American states; on the west and north their boundaries are undefined and blended with the lands of Indian nations and American wilds.

2. *Climate, Produce.*] Far to the north, the hardy pine tree, the only evergreen of polar regions, is no longer seen, and the cold womb of the earth seems incapable of giving life to any other productions than a few blighted shrubs. The accumulating snows which cover the mountains of those solitary and desert tracts, together with the winds which blow from thence near three quarters of the year, occasion a severity of cold in this part of the world even in latitudes which are moderate and pleasant in Europe. A principal

principal part of this extensive country lies in the same latitude with France; but its natural history nearly answers the description of Norway or Sweden. The winters are long and severe; the summers short, warm and pleasant. In many places corn as well as fruits and other vegetables are produced, the meadow lands which are well watered, yield the most luxuriant pasturage for vast numbers of great and small cattle, and tobacco in particular is much cultivated and seems perfectly congenial to the soil. Here also are the most ancient and extensive forests in the world, producing the various species of pines, firs, cedars, oaks, maple, ash, walnut, beech, elm and poplar.

3. *Animals.*] The animals of British America are also similar to those of the northern countries of Europe, as buffaloes, bears, tigers, wolves, moose deer, stags, rein deer, goats, foxes, beavers, otters, lynxes, martens, squirrels, ermines, wild cats, ferrets, weasels, hares and rabbits.

Of the feathered tribe there are numbers of eagles, falcons, goshawks, terrels, ravens, owls, woodcocks, snipes, blackbirds, swallows, larks, thrushes, finches, immense flocks of geese, swans, ducks, cranes, bustards, partridges, and almost every species of wild fowl.

Among their reptiles the rattlesnake is the most remarkable.

Of sea fish there are whales, morse, sea wolves, sea cows, porpoises, cod fish, herrings, anchovies, pilchards, and various other kinds, and in the rivers and lakes there are pike, perch, carp, trout, &c.

4. *Rivers, Lakes, Bays.*] The rivers, lakes and bays in this part of the world are numerous, large and deep. The rivers here, which from their magnitude might claim, if in other countries, particular mention, appear diminutive if compared with the great river St. Lawrence, in which indeed many of them are ultimately absorbed. The same may be said of many capacious lakes, when compared with those inland seas, the lakes of Canada; they are five in number, the Ontario, Erie or Oswego, Huron, Michigan, and lake Superior, the smallest of which is no less than two hundred leagues in circumference, and lake Superior, by far the most spacious, and containing several large islands, is at least fifteen hundred miles in circuit. These lakes give rise to several vast rivers, particularly the Mississippi, which runs from north to south till it falls into the Gulf of Mexico, after a winding course of four thousand five hundred miles, receiving in its progress the Illinois, the Misfaures, the Ohio, and other great rivers scarcely inferior to the Rhine or the Danube; and on the north the great river St. Lawrence, which runs a contrary course from the Mississippi, till it empties itself into the ocean near Newfoundland, after receiving the Outawais, the Champlain, Trois Rivieres, Despaires, Seguinay, St. John's, and several other rivers, and becoming at its mouth about ninety miles wide. All these lakes are navigable by the largest vessels.

and have a communication with each other ; except that the passage between Erie and Ontario is interrupted by a stupendous fall or cataract, called the Falls of Niagara. Where the rock crosses it, it is about half a mile broad, and from the bend of the cliff describes a crescent ; when it comes to the perpendicular fall, which is one hundred and fifty feet, words cannot express the sensations occasioned by seeing such a vast body of water violently thrown from so amazing an elevation on the rocks below, from which it again rebounds to a very great height ; and from its being converted into foam by these violent agitations, appears as white as snow. The noise of this fall is often heard at the distance of fifteen miles, and sometimes much farther ; and the vapour arising from it, which resembles a cloud or pillar of smoke, may also be seen at a very considerable distance, and it is varied like the rainbow whenever the sun and the position of the traveller are proper for producing that phenomenon. Beasts and fowls frequently lose their lives in attempting to swim across, and are found dashed to pieces below ; and sometimes Indians, either through carelessness or inebriety, meet the same tremendous fate ; which circumstances draw great numbers of birds of prey to the place to feast on the dead bodies.

5. *New Britain.*] New Britain, which is commonly called the country of the Esquimaux comprehends Labrador, New North and South Wales. Our first knowledge of this part of the world originated from a project started in England for the discovery of a north-west passage to China and the East Indies. Forbisher, and after him Davis, were the first adventurers in this hardy navigation, and the Streights which they discovered still bear their names. Early in the seventeenth century Hudson made three voyages on the same adventure ; he entered the Streights which lead into that immense bay, which, together with the Streights, still bear his name ; he coasted a great part of this new Mediterranean, and penetrated as far as eighty and an half deg. into the heart of the frozen zone, but was at last, with seven of his faithful adherents, committed by the crew in an open boat to the perils of the icy seas : these hardy adventurers were never more heard of, but the crew returned to Europe. The last discoveries of Cook seem to prove that this much desired navigation is altogether impracticable.

The Hudson's Bay company employ four ships and one hundred and thirty seamen : they have four forts, viz. Churchill, Nelson, New-Severn and Albany, which stand on the western shore of the Bay, and are garrisoned by one hundred and eighty six men. They barter English commodities with the Indians for furs and peltry. The rudest workmanship meets with admirers among these uncivilized people, and the most faulty goods find a ready market ; on the other hand, the skins and furs enter largely into English manufactures,

factures, and afford materials for opening a beneficial commerce with several European nations.

6. *Canada.*] The only towns of importance in Canada are Quebec, Trois Rivières and Montreal, all situated on the river St. Lawrence, by means of which an extensive commerce is carried on, employing about sixty ships and one thousand seamen annually, though it is much interrupted by the severe winters when the largest rivers are frozen over and the ports consequently blocked up. Their exports are skins, furs, ginseng, snakeroot, capillaire, wheat, &c. their imports the manufactures of Europe and the produce of the West Indian islands.

Near Quebec is a fine lead mine; the whole country abounds in coals, and it is asserted that silver is found in the mountains.

7. *Nova Scotia.*] The inhabitants of Nova Scotia export all sorts of lumber, such as planks, staves, hoops and joists, together with immense quantities of fish; the latter, indeed, is their staple commodity, and employs a great number of hands; their imports are the produce of the West Indian islands and the commodities of Europe.

The principal towns in Nova Scotia are Halifax on Chebucto Bay, Annapolis on Fundy Bay, St. John's on the mouth of a river of the same name; but the most recent establishment, and which bids fair to become the most opulent, is that of Shelburne town, founded by the American loyalists or refugees.

7. *History.*] Sir William Alexander settled in Nova Scotia in 1622, but it was surrendered to the French by Charles I. on the family alliance between him and that court in 1625. It was recovered under Cromwell in 1654; delivered again to the French by Charles II.; recovered in 1690; ceded to France at the peace of Ryswick in 1697; conquered again by the English in 1710; confirmed to them by the treaty of Utrecht in 1714; and again by the treaty of Aix-la-Chapelle in 1748.

John Verrazen took possession of Canada in the name of the King of France in 1525; the French attempted to settle it in 1534, and in 1608 built Quebec; but the whole country was conquered by the English in 1759, and confirmed to them by the peace in 1763.

S E C T I O N III.

AMERICAN STATES.

The thirteen United Provinces of America, or the American States, form one large republick; they are bounded on the north by British America, on the east by the Atlantic Ocean, on the south by Spanish America, and on the west by numerous Indian nations, and those extensive and lofty ridges the Apalachian or Alligany mountains. They are situated between thirty and forty nine deg. north latitude, and between sixty seven and ninety two deg. west longitude, and are nearly in the following order:

1. *Divisions.*] From north to south; the first four are included under the general name of New England.

<i>Provinces.</i>	<i>Towns.</i>
NEW HAMPSHIRE.	Portsmouth, York, Wells, Biddiford, Brunswick, Newcastle, Deerfield.
MASSACHUSETT'S BAY.	Boston, Cambridge, Salem, Charles Town, Plymouth.
RHODE ISLAND.	Newport, Providence.
CONNECTICUT.	Newhaven, Guilford, New London, Norwich, Salisbury, Newtown.
NEW YORK.	New York, Albany, Schenectady, Orange, West Chester, Jamaica, Southampton, Richmond.
NEW JERSEY.	Princeton, Perth Amboy, New Brunswick, Burlington, Trenton, Elizabethtown, Newark, Bergen, Gloucester, Salem, Hopewell, Morris.
PENNSYLVANIA.	Philadelphia, German Town, Frankfort, Abingdon, Dublin, Radnor, Bristol, Chester, Newtown, Reading, Easton, Lancaster, York, Carlisle, Oxford, Chichester, Aquoqueminck.
DELAWARE.	Newcastle, Haverfordwest, Dover, Cranebrook, Lewis.
MARYLAND.	Baltimore, Annapolis, Oxford, St. Mary's, Chester, Somerset, Princess Ann, Snow Hill, Queen's Town, Dorchester, Bristol.
VIRGINIA.	Williamsburg, James Town, York, Masterkout, Abington.
NORTH CAROLINA.	Wilmington, Edenton, Newburn.
SOUTH CAROLINA.	Charles Town, Port Royal, St. James, Christ Church.
GEORGIA.	Savannah, Augusta, Frederica, Sunbury, Purifburgh.

2. *Soil,*

2. *Soil, Climate, Productions.*] The natural history of the northern provinces is much the same with that already given of British America and Norway or Russia, the countries here being generally colder than those of Europe in the same degrees of latitude; in the southern provinces also there are very extensive forests containing the greatest variety of timber, and many of the animals that run wild in the north, as bears, wolves, tigers or panthers, elks, red deer, beavers, &c. Horses, cows, sheep and hogs, which were introduced from Europe, run wild here, and indeed over a great part of this extensive quarter of the globe in prodigious numbers. Great quantities of tobacco, indigo and rice are cultivated in the southern provinces, which also produce many of the tropical fruits, as olives, grapes, oranges, lemons, citrons, &c. Several of the trees yield gums; from one there distils an oil of great efficacy in curing wounds, and another produces a balm supposed to be little inferior to that of Mecca; and cotton and silk are also produced here.

The lands on the eastern shore of America are generally low and in some parts swampy, being one continued level for eighty miles distance from the sea, without diversity of hill and dale, and with scarce even a pebble much less a rock to be met with. The uplands are more pleasant. Peaches, apples and other fruits, hemp, flax, and a vast variety of herbs generally flourish through the states; Indian corn also, or maize, and the other kinds of grain, except in New England, where the wheat is very subject to be blasted; the barley is a hungry grain, and the oats are lean and chaffy.

In the states are found quarries of stone, mines of coals, lead and copper, and vast quantities of iron ore.

3. *Commerce.*] A land so rich in natural productions and inhabited by a people acquainted with arts and sciences, will hardly fail to make a conspicuous figure in the commercial world; they have already done this under the British government, and now having become independent, they trade on their own account with the different nations of Europe; from them they receive various commodities and manufactures, and supply to them the different productions of their own extensive and fertile country; their trade is also opening out to the most distant parts of the earth; their rivers seem to favour the most enlarged plans of commerce; besides the vast rivers Hudson, Delaware, Susquehanna, Potomack and James's River, they have several others of great depth, length and commodious navigation; and hence many parts are so advantageously intersected with navigable rivers and creeks that many of the planters are furnished with harbours at their very doors.

4. *Language, Religion.*] Though English is generally the language of the States, yet in particular parts where colonies have settled from other European nations, their respective tongues are spoken and their native manners adhered to; hence a traveller, especially in Pennsylvania or New-York, by pitching upon a particular place,

place, may imagine himself transported to Holland, Germany, or Sweden; here he may hear the languages of those countries constantly spoken, taught in their schools, used in their places of worship, in their books, and even in their common newspapers. In this country also he may meet with most of the religious professions to be found in Europe; and what is accounted more extraordinary, he may find this diversity of people, religions, nations and languages, living in harmony with each other.

5. *Learning.*] Literature and the sciences seem to be held in great esteem with the Americans; besides smaller schools they have colleges or academies from New England to Georgia, as at Cambridge, Newhaven, New-York, Prince-Town, Philadelphia, Williamburgh and Savannah.

When, in the late disputes, the Carolinians, in common with the other colonies, resolved against the use of certain luxuries, and even necessaries of life, those articles which improve the mind, enlarge the understanding and correct the taste, were excepted, the importation of books being permitted without limitation; and when the late civil war was carrying on with the greatest animosity on both sides, an act was passed by the council and house of representatives of Massachusetts for incorporating and establishing a society for the cultivation and promotion of the arts and sciences, entitled The American Academy of Arts and Sciences: It was therein declared, that the end and design of the institution of the said academy was to promote and encourage the knowledge of the antiquities of America, and of the natural history of the country, and to determine the uses to which its various natural productions might be applied; to promote and encourage medicinal discoveries, mathematical disquisitions, philosophical enquiries and experiments, astronomical, meteorological and geographical observations; improvements in agriculture, arts, manufactures and commerce; and in short to cultivate every art and science which might tend to advance the interest, honour, dignity and happiness of a free, independent and virtuous people.

6. *History.*] The first attempt that was made by the English to settle in North America was in Virginia in 1607, when Jamestown was built; but all the sea coast had been discovered by Sebastian Cabot in 1497. New England was first settled in 1614 by the Plymouth Company. Part of New York was settled by the Dutch in 1608. Soon after the Swedes arrived, and took possession of another part; but they were all subdued by the English in 1664. Maryland was first settled by the Lord Baltimore in 1633; Carolina by some English noblemen under Charles II. in 1670; Pennsylvania by William Penn, in 1681; and Georgia by General Oglethorpe in 1732. The United Provinces, in congress assembled in 1776, published a solemn declaration, in which they assigned their reasons for withdrawing their allegiance from the King of Great Britain; they declared, that they then were, and of right

right ought to be, free and independent states; and that as such they had full power to levy war, conclude peace, contract alliances, establish commerce, and do all other acts and things which independent states may of right do. Early in 1778, the French King first acknowledged their independency, by concluding with them a treaty of amity and commerce, under the designation of the United States of America. In 1782, near the close of the year, provisional articles were signed at Paris by the British and American commissioners, in which the King of Great Britain acknowledged the thirteen colonies to be free, sovereign and independent states; which articles were afterwards ratified by a definitive treaty.

SECTION IV.

TERRITORIES OF SPAIN IN NORTH AMERICA.

The Spanish dominions in North America extend from eighty-one to one hundred and twenty deg. west longitude, and lie between eight and forty-three deg. north latitude. They are bounded on the north by the American States and numerous Indian nations; on the west their shores are washed by the Pacific; on the east by the Gulf of Mexico and the Atlantic; and on the south they terminate in the Isthmus of Darien, which joins them to South America.

1. *Divisions.*] They comprehend the following countries or divisions.

Countries.

E. FLORIDA.
W. FLORIDA.
LOUISIANA.
N. MEXICO.
CALIFORNIA.
O. MEXICO.

Chief Towns.

St. Augustine.
Pensacola.
New Orleans.
St. Fee, St. Antonio, Tuape.
St. Juan.
Mexico, Acapulco, Vera Cruz, Tlascala, Mochoacan, Tampice, Guaxaca, Tobasco, Campeachy, Chiapa, Soconusco, Verapaz, Guatemala, Valladolid, Leon, Nycoya, Sta Fee, Guadalajara, Zacatecas, St. Barbara, Cinolea, Charnetlan, Xalitico.

2. *Climate, Soil.*] So extensive a tract of country naturally includes within itself a variety of climates and soils. It is generally warm and pleasant, but the northern parts are sometimes visited by chilling winds from the north west, while the southern parts lying principally

principally within the torrid zone are excessively hot, and on the eastern shore where the land is low, marshy and constantly flooded in the rainy seasons, the air is extremely inimical to health. During the winter, strong winds prevail in the Gulf of Mexico and the adjacent seas. Trade winds, monsoons, sea and land breezes are experienced here. The soil is generally very fertile, but it is in the most mountainous and sterile parts that the mines of silver and gold are discovered.

3. *Plants, Animals.*] This country produces rice and the different kinds of corn; a great variety of esculent roots and herbs; indigo, tobacco, cacao, cotton silk, which is the work of insects, and is in itself an assemblage of minute creatures; cochineal, logwood, mogany, and the different kinds of timber; a great variety of dyes, gums and medicines; and the different kinds of tropical fruits, as grapes, figs, pine-apples, pomegranates, limes, oranges, lemons, citrons, &c. together with immense quantities of sugar.

The animals first brought here from Europe have multiplied in astonishing numbers, and many of them run wild in the woods, as cows, horses, asses, sheep, goats; here are also buffaloes, moose-deer, a sort of lions and tigers, wolves, ounces, pecarees, monkeys, opossums, racoons, wild cats, beavers, the armadillo and sloth, the flying squirrel, a variety of lizards and serpents, &c.

The birds are peacocks, the macaw, the quam, the curasoe, the cardinal and the humming bird, linnets, larks, nightingales, &c. bustards, geese, cranes, vultures, gulls, cormorants, mews, quails, with many other species.

The multitude and variety of fish that abound in the rivers, creeks, bays and seas in this part of the world are innumerable; among these are the manati and five or six different species of turtle, the gar fish and paracood, salmon, turbot, barbel, skate, mackarel, pilchards, soals, bonettas and many other species, pearl and other oysters, cray-fish, lobsters and other shell-fish.

4. *Minerals.*] Mines of pit coal, iron ore, copper and quick-silver have been discovered in the Spanish part of North America, and a kind of stone pitch called copel, which the Spaniards use as tar for their shipping; it also yields turquoises, emeralds, amethysts, lapis lazuli, and other precious stones, jasper, porphyry, and very fine marble; amber and pearls are found on the coasts. There are mines of gold and silver in New Mexico, but the value of their produce cannot yet be ascertained. The mines of these highly valued metals, especially those of silver in Old Mexico, are prodigious.

Mexico may be considered as the centre or heart of all the commercial affairs of Spain. The trade of Mexico consists of three capital branches. It carries on a traffic with Europe by La Vera Cruz, situated on the Gulf of Mexico; with the East Indies by Acapulco on the South Sea, and with South America by the same port. Though this immensely rich trade passes entirely through the hands of the Spaniards, and in the very centre of their dominions, their

their profits are comparatively small; for as they allow the Dutch, the English, and other commercial states to furnish the greatest part of the cargoes of the Flota from Spain, to the Spanish inhabitants of the Philippines, possessed with the same spirit of indolence which ruined their European ancestors, permit the Chinese merchants to supply the principal part of the Manilla Galleon, and thus the vast produce of their mines is distributed over the world, and the Dons are relieved from that prodigious load or burthen of wealth under which, in a political capacity, they may be rather said to have laboured than grown rich.

SECTION V.

INDIAN NATIONS.

The internal parts of North America, and from thence to the vast Pacific on the west, are unknown to Europeans, and inhabited by numerous nations of Indians. The tribes whose names we have heard of are nearly as follows from north to south: The Esquimaux, the Ounamies, Outagamies, Algonquils, Nepissings, Sakis, Nokes, Miamis, Hurons, Illinois, Outrachies, Loutres, Savan-
nois, Sioux, Assiniboils, Christinaux, Iroquois, Tuscaroras, Creeks, Cherokees, Kataubas, Choctaws, Chickesaws, Natches, Apaches, &c. In South America also there are immense tracts of land inhabited by independent nations of Indians. In Guiana are the Caribbees, Worrows, Accawans and Arrowauks; in Amazonia, Omaguas and Yurimaguas; in Brazil the Tapuyers and Topinamboys; in Parag-
quay the Chaconese and Guaranis; and in Patagonia the Pampas, the Coffares and Patagonians.

SECTION VI.

SOUTH AMERICA.

The Spaniards, besides their extensive territories in North America, have immensely rich and very extensive possessions in the south. Indeed, if we except the large province of Brazil, which is in the hands of the Portuguese, and the smaller settlements of the Dutch in Surinam, and of the French in Cayenne, all lying on the eastern coast between the rivers Oronoque and La Plata, they claim the whole

whole of South America from the northern coast of Terra Firma and the Isthmus of Darien, through many large and fruitful provinces to the streights of Magellan on its bleak southern extremity.

History.] The Spanish part of America was early in the sixteenth century mostly subdued by private adventurers, commissioned by their court, but their conquests were attended with the most aggravated circumstances of cruelty. Millions of the poor Americans fell under the destructive swords of the Spaniards, their country was laid waste, they were robbed of their treasures, and their Emperors or Incas barbarously put to death.

Part of Spanish America, however, has been reduced in a very different kind of way; not by the force of arms, but by the labours and zeal of Romish missionaries. The Jesuits have in America prevailed upon many thousands of families of the Indians to abandon their savage manner of life; they have instructed them in arts and sciences, taught them the principles of their religion, and entirely reduced them to the European civilization.

As the principal part of South America lies within the Torrid Zone, its climate and natural productions are generally such as are common to tropical climates. Thick swarm the birds of most beautiful plumage, the beasts of the forest multiply in astonishing abundance, and every swamp and every fen teem with life in various forms; the most venomous creatures, the most deadly poisons, and the most sovereign antidotes, finest gums, balsams and fruits abound here. Its gold and silver mines, and its precious stones are sufficiently celebrated. South America also, like other tropical countries, experiences periodical winds and tempests. Rains and floods which drive the inhabitants to the hills, lay the lowlands under water, and fertilize the soil. The mountains and rivers in this quarter are the largest in the world. The mountains which form the Andes extend above five thousand miles in length, nor is their height less remarkable than their extent; they are computed to be three miles perpendicular; their summits are always covered with snow, even in the midst of the Torrid Zone; many of them are volcanoes, and the greater part of them mines of the most precious metals. The rivers which have their source in these lofty ridges, as the Orinoco, the Amazons, and the Plata, appear like seas enclosing in themselves numerous and extensive isles, or pouring their mighty waters into those of the ocean with such rapidity and force as to freshen it for many leagues distance from the land.

I. PORTUGUESE AMERICA.

This country receives its name of Brazil from its abounding with that kind of wood. It lies between the equator and thirty-five deg. south latitude, and between thirty-five and sixty deg. west longitude. It is bounded on the north by the mouth of the river Amazons and the Atlantic Ocean, by the same ocean on the east, by the mouth of the River Plata on the south, and by a chain of mountains, which divide it from Paraguay, and the unknown country of the Amazons on the west.

The most capital cities or towns of Brazil are St. Salvadore, Rio de Janiero and Fernambuco. To these three places flota are annually sent from Portugal, fraught with the various commodities and manufactures of Europe; for there as well as in Spain they let other commercial nations furnish the principal part of the cargoes of the flota, though all passes in the name or through the hands of their own merchants, who as well as the Spaniards have invariably shewn the strictest fidelity, and never once betrayed the trust the foreign merchants reposed in them, whatever wars there might be between their respective nations, nor let their goods be disseized, which they would have been liable to if acknowledged to be foreign property. The other towns are Para or Belim, St. Lewis, Siara, St. Luc, Tignares, Payraba, Tamara, Olinda, Serigippe, Paya, Porto Seguro, Spirito Sancto, St. Sebastian, St. Vincent. The returns from Brazil are its natural productions, as gold, diamonds and other precious stones, sugar, tobacco, hides, indigo, Brazil wood, and other valuable drugs both for medicine and manufactures; vast quantities of gold, also ebony, ivory, &c. first brought here from their settlements in Africa, and thus are their immense treasures distributed over Europe.

History.] A Portuguese fleet bound for India in 1500, stood out so far to sea to avoid the calms on the African coast that they fell in with Brazil. On their report the court of Portugal undertook to colonize this country; they transported convicts here; these treated the original inhabitants with cruelty, who took every opportunity to retaliate on their invaders. This country, together with Portugal, fell under the dominion of Spain, and when the Dutch revolted from that crown they made conquests in this country. These were afterwards driven out by the Portuguese, and that they might cease from annoying them, and give up their claims to Brazil, the Portuguese in 1661 agreed to pay the Dutch eight tons of gold.

2. FRENCH and DUTCH AMERICA, GUIANA.

The possessions of the French on the American continent are now very inconsiderable. Having lost Canada and Louisiana, they have no longer any footing in North America; however, they still retain a settlement on the southern continent of America, to which they have given the name of Cayenne or Equinoctial France.

This country is situated between the equator and five deg. north latitude, and between fifty and fifty-five deg. west longitude. It extends two hundred and forty miles along the coast of Guiana, and near three hundred miles within land, being bounded by Surinam on the north, by the Atlantic on the east, by Amazonia on the south, and by the territories of the native Indians on the west.

The country is not yet in very high cultivation; it produces however sugar, coffee, and a prodigious quantity of useful trees, plants, gums, &c.

History.] The French first established themselves here in 1653: After this they abandoned the place; the English took possession of it, but the French soon returned and drove them out; these were in their turn expelled by the Dutch; the French the same year obliged them to evacuate it, and have since kept it in their possession, though the Dutch have made some attempts to retake it.

Surinam or Dutch America lies between five and seven deg. north latitude, is bounded by the Atlantic Ocean and the River Oroonoco on the east, and north by Cayenne, and the territories of the natives on the south, and by Terra Firma on the west. Its productions are tobacco, cotton, sugar, coffee, skins, flax, and some valuable drugs for dying and medicine.

History.] Under Charles II. the Lord Willoughby, governor of Barbadoes, first formed a settlement in this country. When the English had dispossessed the Dutch of New-York, the latter sent a fleet against the colony of Surinam and subdued it; and at the peace of Breda it was agreed that each should keep the territories they had won from the other.

The other parts of Guiana are indeterminate, and unknown to Europeans.

3. SPANISH SOUTH AMERICA.

The dominions of Spain in South America are as follows :
Countries. *Chief Towns.*
TERRA FIRMA. Panama, Porto Bello, Carthagena, St. Martha,
Rio de la Hacha, Venezuela, Comana, St. Thomas,
St. Fee de Bagota, Popayan.
PERU. Lima, Cusco, Quito, Payta, Potofi, Porco.
CHILI. St. Jago, Conception, Baldivia, Imperial, St. John
de Frontiera.
PARAGUAY. Buenos Ayres, St. Jago, Assumption, St. Anne,
Cividad Real, Los Reyes.
Spain also lays claim to Amazonia and Patagonia.

The climate and soil of Spanish America vary from the smoaking
swamp and parched sand, to the pleasant and healthy upland, and
bleak and barren mountain top ; in general, however, from the per-
petual snows on the mountain, the air is rendered more cool and
temperate here than in the same latitudes in Africa.

Among the profusion of vegetables produced in this part of the
world are the several European grains, Indian corn, rice, sugar-
canes, pine-apples, olives, grapes, tamarinds, oranges, lemons,
dates, figs, bananas, cocoas, almonds, guavas, coffee, pepper, &c.
potatoes, cassava, and several other roots ; various kinds of gums
and drugs, as sarsaparilla, dragons blood, balsams, rhubarb, storax,
guaiacum, ipecacuanha, quinquina or jesuit's bark, the herb para-
guay, &c. tobacco, indigo, hemp, cotton, &c. Unnumbered are
the varieties of trees in the forests ; some of these are of a kindly
nature, and supply them with honey, vinegar and drink ; others are
most deadly ; such in particular is the malignity of the manzanillo
tree, that if a person only sleeps under it, his body swells and is
racked with the severest tortures.

The European fruit trees are obliged to be propped here, to ena-
ble them to sustain the weight of the fruit, and the strawberries are
as big as pears.

The numbers of animals in Spanish South America are prodigi-
ous ; the horses, cows, &c, originally imported from Europe have
encreased in astonishing abundance, they run wild in herds, and are
hunted for the sake of their hides and tallow : The other quadru-
peds are the tapir, the lama, the vicuina, the guanaco, a sort of
lions, tigers and panthers, deer, foxes, &c. baboons of a large
size, and prodigious numbers of monkeys of various colours whose
flesh is highly valued, sloths, armadillos, ant-bears, &c.

Among the innumerable flights of birds are the condor, the zumbador; turkeys, geese, and all kinds of poultry, wood pigeons, turtle doves, partridges, snipes, woodcocks, royal cirapicos, guacamayos, gallinazos, the toucan or preacher, the despertadore or awakener, &c.

The rivers, lakes and seas abound in excellent fish: In the last are whales and sea wolves, with a variety of other kinds; and in the rivers alligators and crocodiles. The number and variety of snakes in this country is great; besides the rattle snake, here are found some which are twenty-two feet long, and thick in proportion; and if credit may be given to the Spaniards, swallow a whole stag at a time: There are some that climb up trees, and from thence dart upon their prey, which they crush to pieces by twining themselves round it, and others that live entirely in rivers and prey upon fish: There are likewise many of them, which, though terrifying to the sight, are perfectly harmless.

Emeralds, sapphires, and other precious stones, and quarries of lapis lazuli and of loadstone, are found in Spanish America: mines of gold, silver, copper, tin, quicksilver, iron and lead abound in the mountains.

These various rich productions form the exports of these countries, and their imports are the commodities of Europe and the Indies. The commerce is chiefly carried on here as in Mexico by means of regularly stated fleets.

The galleons form a fleet consisting of eight men of war of five hundred tons each, designed principally to supply Peru with military stores; but in reality laden not only with those, but with every kind of merchandize on private accounts. Under the convoy of these are twelve sail of merchantmen, not inferior to the galleons in burthen; this fleet is regulated in much the same manner as the flota, and is destined for the exclusive commerce of Terra Firma and the South Sea, as the flota is for that of Mexico. As soon as it arrives at Carthagena, expresses are dispatched to Porto Bello, and to all the adjacent towns, but particularly to Panama, that they may get ready all the treasure which is deposited there (and which has first been brought by the South Sea from Lima, which city may be accounted the centre of all the wealth of Chili and Peru) to meet the galleons at Porto Bello; here all that are engaged in the various branches of this extensive trade assemble. There is no other part of the world where business of such great importance is transacted in so short a time; for sometimes in a fortnight the fair is over: During the continuance of it heaps of wedges and ingots of silver are thrown on the wharf without any appearance of care; and the display of gold, silver, and precious stones on one hand, and of the curious workmanship of the different ingenious fabrics of Europe on the other, is amazing.

P. IX.

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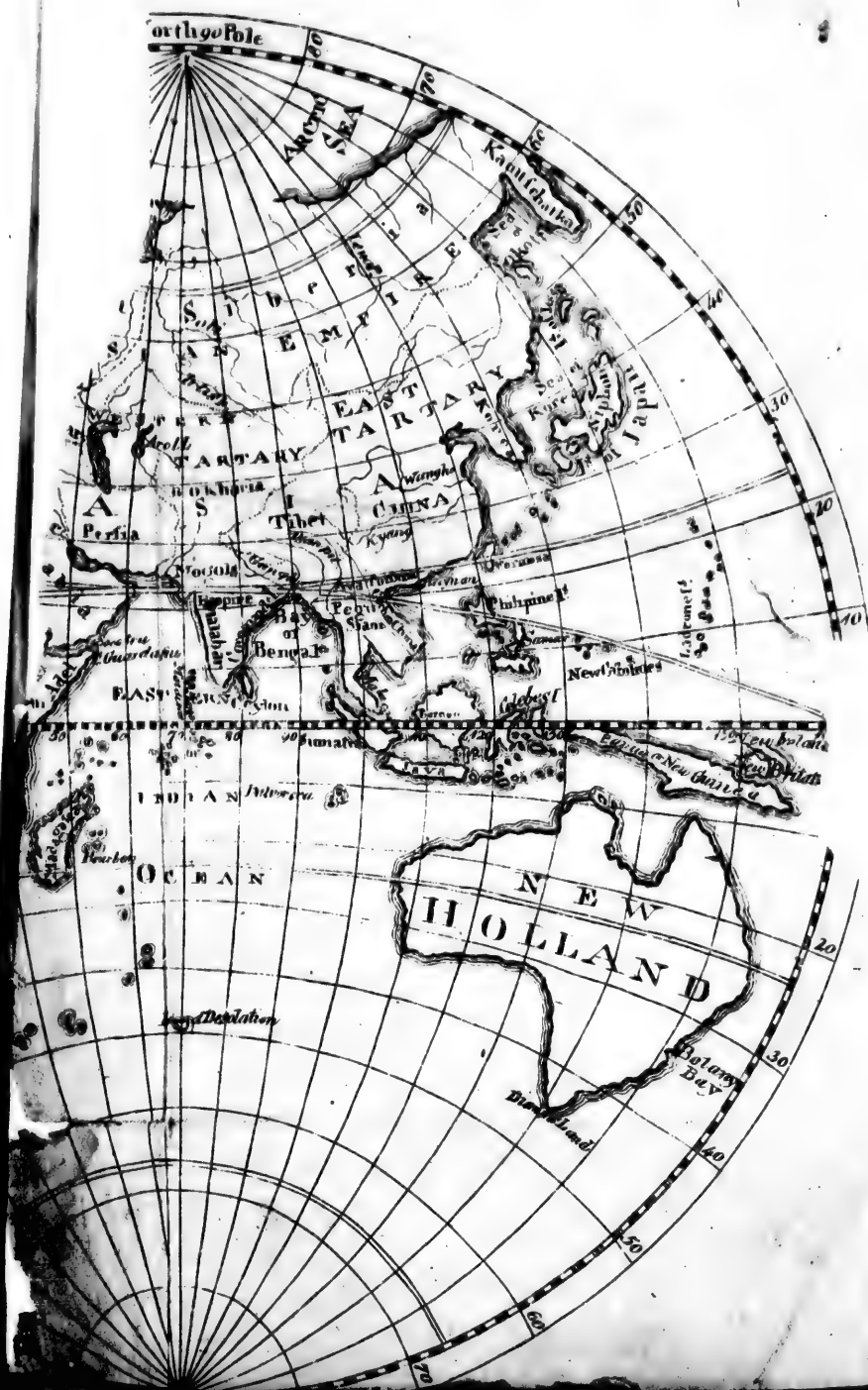
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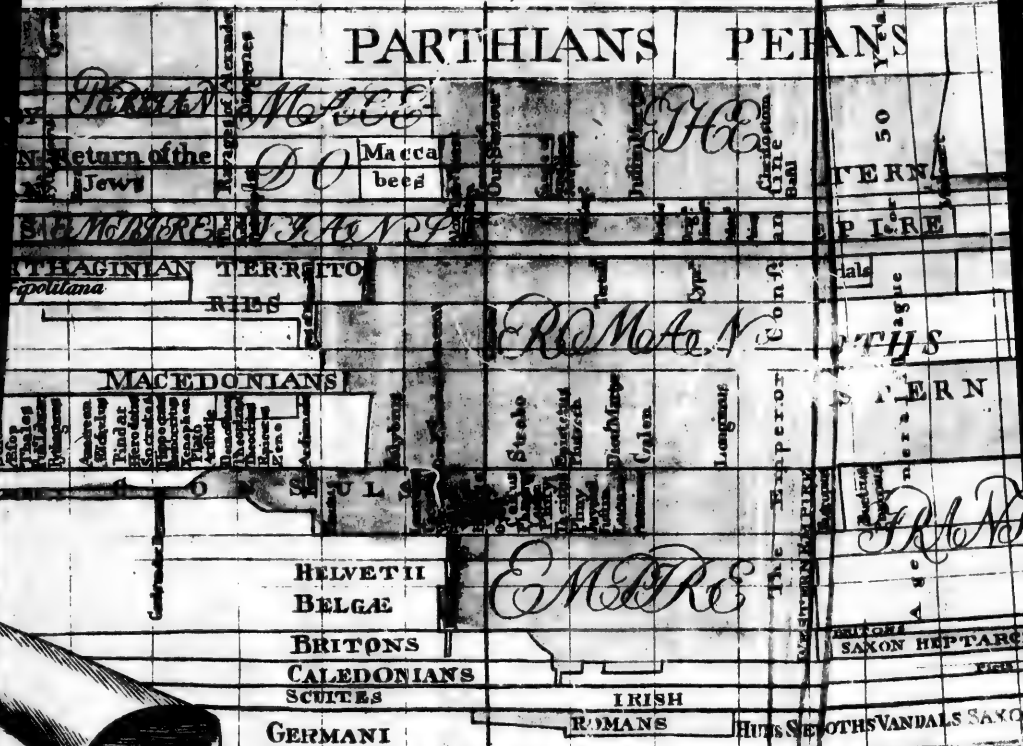
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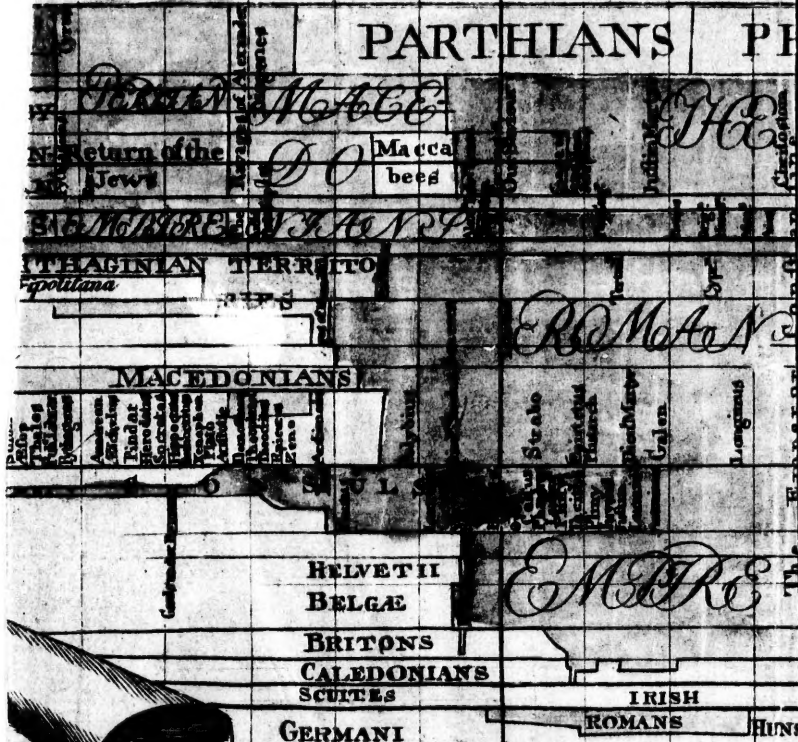
Vandals
Goths

In this Chart the greatest revolutions that we have known of the principal Kingdoms of Europe
Happens appear on a mere Inspection: the Spaces between the Parallel Lines which cross the map are
100 Years these are Numbered in order both before and after the Christian Era, which is denoted by
the Horizontal line represent Countries whose Names are expressed at the end of the
By Examining the vertical columns we ascertain the temporary states of different Nations
for Instance -- at the time of the Christian Era we find Roman power spread over a
North; but Great Britain as yet unsubdued by the base Welsh Nation as yet undiscovered
before it we see States forming in Greece & Kings beginning to reign in Italy -- 100 Years after it we find
only in Turkey, & their former possessions under Samer & Gothic Nations: France & these lands as yet
under the Heptarchy; in Scotland the Picts in Ireland its own independent Natives -- in 1600 we find the
under the Turks; the Tartars powerful in Asia many of the modern States of Europe now for the most part
On the other hand by looking along the Parallel Lines we may read in considerable Particular Histories of Nations
remote Antiquity undergoing various Revolutions from Assyrians, Babylonians, Persians, Macedonians, Romans, Jews, Christians, &c.
Hebrews about 1450, delivered from Egypt, obtaining a King 470 Divided into the ten tribes & the 12 Tribes, 600 Years
the Persians 330 under the Macedonians & their Rights asserted by the Macedonians 60 under the Romans &c. before
the Roman Empire founded about 600 before the Christian Era; extended by degrees over the whole of
Saracens in 1400 England subdued by the Romans in the first Century; was relinquished by them 500
French Territories about 1700 & is joined to it 1200 Wales 1600 Scotland: thus in 1600 we see the European
Independent States
Idea from this Chart the Space allotted to any particular Country is generally according to its political
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EXPLANATION

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Vandals

Goths

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 Independent States

Idea from this Chart the face allotted to any particular Country
 Idea from this Circumstance the accompanying Map of ancient Geogr

EXT

I have put his papers into the hands of Daniel Defoe, for the purpose of preparing them for the press; but that man, by the help of these two or three and a lively fancy, metamorphosed Alexander Selkirk into with Eurason Crusoe, and then returned the originals to their proprietor; which means the real adventurer was in a great measure discredited, while the romance-writer obtained no inconsiderable share of

The vast country of the European colonies of America by means of the great river perfectly explored: Some of the Spaniards and Portuguese, but many difficulties, that few of the adventurers could have had gold or other very valuable produce having been found in the country, Europeans are but little disposed to make any new settlement there.

5. PATAGONIA.

Patagonia has always been represented by geographers as a barren inhospitable country, and in a great measure destitute of wood, or any other incentive to colonization. The Spaniards however attempted it in 1581, built a town which they named Philippeville, and placed about four hundred persons in it; but the celebrated English navigator Cavendish in 1587, found only one of the settlers alive on the beach: Twenty-three of them had set out for the river La Plata and were never afterwards heard of, and all the rest had perished through famine; from which circumstances the place received the name of Port Famine.

PARTHIANS

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 smoke which were
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 mate here however human-
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 named, till Magellan discovered and

ments of Magellan lie the Falkland islands belonging to the English. As these islands lie in a similar latitude to that of the south of England, they might naturally enough be supposed to enjoy nearly the same climate, were it not a well known geographical truth, that the southern hemisphere is much more inclement than the northern one.

Falkland islands, which are divided from each other only by a strait four or five miles in breadth, are both dreary and desolate spots, affording neither timber nor vegetables in any considerable quantities: The coasts, however, are frequented by innumerable herds of seals and vast flights of fowls, particularly penguins and

The island of Juan Fernandes lies to the west of South America in thirty-three degrees south latitude, and about three hundred miles from the coast of Chili. This romantic isle diversified with woods and water, with craggy hills and fertile spots, is famous for having given rise to the celebrated romance of Robinson Crusoe. It appears that one Alexander Selkirk, a seaman, and a native of Scotland, was put ashore, and left in this solitary place by his captain, where he lived some years, and was discovered by Captain Woodes Rogers in 1709: When taken on board, he had through disuse so forgot his native language, that he could with difficulty be understood: He was clothed with the skins of goats, would drink nothing but water, and could not for a considerable time relish the ship's provisions. During his residence on this island he had killed five hundred goats, which he caught by running down; and as many more he marked on their ears and again set at liberty. Commodore Anson's crew caught some of these goats thirty years after, which discovered in their countenances and beards strong marks of age. Alexander, on his return to England, was advised to publish an account of his life and adventures in his little kingdom; and he is said to have

have put his papers into the hands of Daniel Defoe, for the purpose of preparing them for the press; but that man, by the help of these memoirs and a lively fancy, metamorphosed Alexander Selkirk into Robinson Crusoe, and then returned the originals to their proprietor; by which means the real adventurer was in a great measure disregarded, while the romance-writer obtained no inconsiderable share of literary fame.

F I N I S.

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